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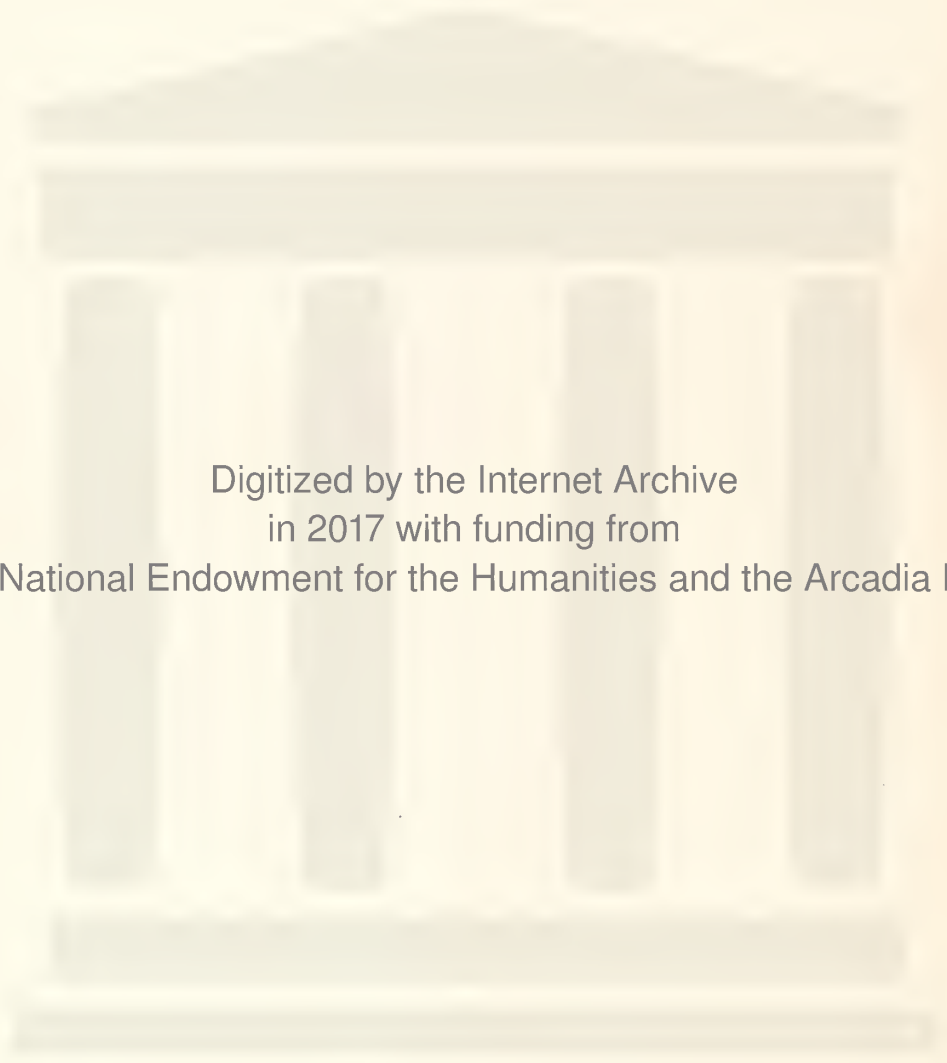
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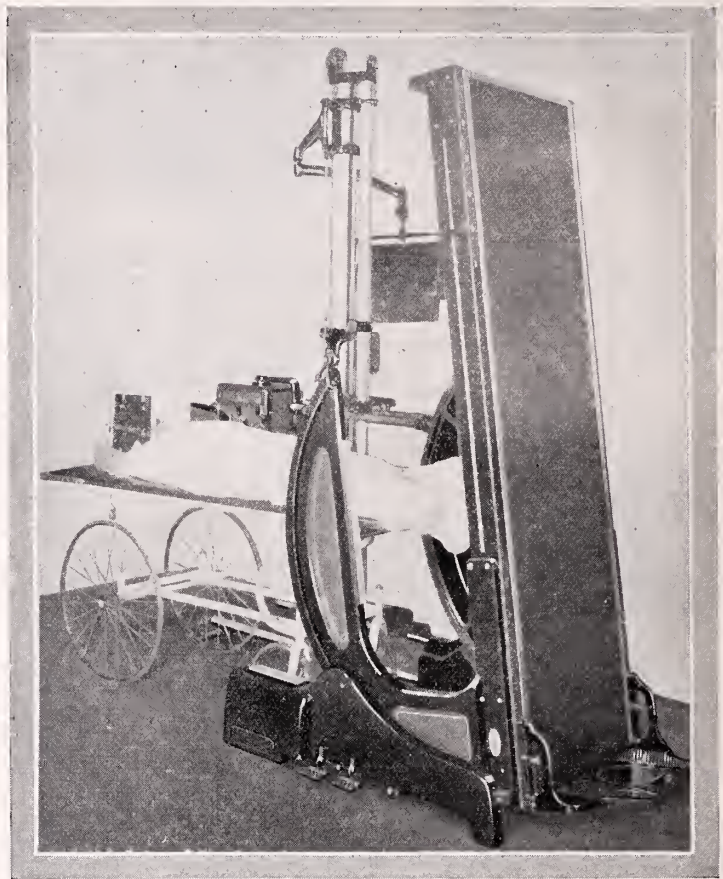
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# KENTUCKY MEDICAL JOURNAL

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## EDITORIALS

### THE NEW YEAR

Fortunately it was unnecessary for the Kentucky State Medical Association to waste any money on postage notifying its membership that January 1, 1931, is the date for the payment of the annual dues to State and County Societies. More than half of its membership pay their dues in the first ten days of the year. It is important to remember that the County Secretary receives no compensation for his services and he should not be put to the trouble of collecting dues. They should be paid him as promptly as insurance and other fixed expenses are paid.

Those who pay their dues promptly are assured the regular receipt of the Journal. Every issue of this publication is worth more than the annual dues to those who read it. Its pages present a fair cross-section of the best medical information of the day. Its twelve issues present through the year a real post-graduate course not only to the busy general practitioner, but, also, to the specialist, who needs more than any other to be kept in touch with the advances made in the branches of medicine with which he is not constantly in contact.

In this day of change in all social relationships no other branch of human activity is more interested than the medical profession. Social evolution always affects medicine and public health but there are more different activities and agencies concentrated upon the solution of problems for which we have peculiar responsibility than ever before. It is only by united action that we can hope to protect either the public or ourselves. There was a time when the cure of disease was the chief responsibility of the profession. Those physicians, however, who do not now realize that the maintenance of health has become the chief objective of the practice of medicine are doomed. It is important that the County Societies consider these problems in order to make their views of weight. It is essential that they make them vocal through publication in the Journal.

More physicians are attending meetings of county and district medical societies in Kentucky than ever before. The profession is alive to its duties and responsibilities. In order to maintain our standards of leadership

it is essential that our members keep themselves in touch with one another and with the whole progress of the profession.

To further these purposes we urge our readers to send their dues to their County Secretaries today while the matter is fresh in their minds.

### THE RADIO

The Journal is very much gratified at the cordial response and constructive criticism it is receiving about the radio programs that are being conducted on Thursday afternoons at 4:50 over WHAS by the State Board of Health and over WLAP at 11 o'clock each Thursday morning by the Woman's Auxiliary to the Kentucky State Medical Association.

Effective public health and medical education are evidently reaching into a rapidly increasing number of homes by these means. Physicians all over this section of the country are encouraging their friends to tune in on these two programs. Timely subjects are being considered and special emphasis is being placed on the progress of scientific medicine and the importance of a wise choice of a family physician. If each reader will bear in mind the names of the stations and the time of these talks and will tell their friends about them, it will help to increase the audience and further public health and medical education.

### LOSS TO OPHTHALMOLOGY

The recent deaths of Prof. Theodore Axenfeld (Germany) and Prof. Ernst Fuchs (Austria) have removed from each of the two German speaking nations one of its most illustrious sons and the world at large has suffered the loss of two of the most productive ophthalmologists of all times.

Of the two Prof. Fuchs was perhaps best known to our American profession for his clinic in the Allgemeinen Krankenhaus in Vienna has for many years been the mecca of American specialists, hundreds of whom crossed the Atlantic every year to worship at the shrine of the great Master. Prof. Fuchs' original work was mostly in the field of pathology but he was also a great clinician, an expert operator and a natural teacher. He was a frequent contributor to ophthalmic lit-



erature, of which his text book on Ophthalmology was a masterpiece. A more complete and lucid and more readable text book was probably never published. As altogether perfect as it appeared in its original the text has become even more readable thru its translation into English by that scholar and student the late Dr. Alexander Duane of New York. "Fuchs" has been adopted by practically all medical colleges in this country and England as a reference work and it can be found in the library of nearly all specialists. It has frequently been spoken of as the oculists bible.

Like most scientists in Europe, Prof. Fuchs lived for achievement and fame and not for financial gain. During the war and immediately after that he became so impoverished that it was not unusual to see him along with other scientists in the bread line in Vienna. After the war he was given the opportunity to "come back" thru the efforts of the ophthalmologists of our country, who arranged lecture tours and classes for him.

Fuchs died in Vienna of Angina Pectoris in November, aged 78 years.

Prof. Axenfeld was perhaps even better known internationally than Fuchs thru his voluminous contributions to ophthalmic literature but more especially thru his activity in the *Montaschrift f. Augenheilkunde* of which he was editor-in-chief and thru his discovery of the diplo-bacillus of Morax-Axenfeld of acute conjunctivitis.

Axenfeld received his early training in Bacteriology under Frankel, in pathology under Marchand and in ophthalmology under Uhthoff whom he assisted for many years before he finally was made Professor in Ophthalmology.

He was a most indefatigable worker especially in the departments of bacteriology and pathology and a voluminous contributor to literature so that one can hardly read a chapter in ophthalmic literature without finding quotations of Axenfeld. His text book on ophthalmology has in Germany in a measure supplanted "Fuchs'" and his publication on Bacteriology in Ophthalmology is a classic.

Prof. Axenfeld was considered a good teacher and his clinic in Freiburg was visited by many ophthalmologists for post-graduate work. It was the writer's privilege to have an intimate acquaintance with Prof. Axenfeld which began in 1893 during an active membership in a fraternal order in Marburg, Germany. Even in the halcyon days of the student Axenfeld was an arduous worker, foregoing the pleasures of fraternity life for his books and the laboratory. When he did attend he was a most genial companion who keenly enjoyed fraternal initiation and other

functions, in fact, he frequently added to the entertainment with song and play for he had a fine tenor voice and yielded a good bow on the violin.

Axenfeld was called frequently to other countries to appear before medical bodies, his last trip taking him to Japan and India. Soon after his trip to the Orient he developed some acute intestinal disorder and died at the age of 63 following an operation.

Thru the deaths of Fuch and Axenfeld ophthalmology has lost two of its most valuable members and teachers whose names will long survive them.

ADOLPH O. PFINGST.

### "RIDERS OF THE PLAGUES"

Every now and then a book is written that is both good and different. One of the most notable of these has come to our desk recently. It is entitled "Riders of the Plagues." It is written by Dr. James A. Toby, whose reputation needs no indorsement to the medical profession of this country. This is the sort of book that every physician should read. It provides him with the sort of thing he needs in talking to his patients, to luncheon clubs, to Parent-Teachers organizations, at schools and wherever he can get one or two people together. It is a readable story of the world's greatest heroes. Every physician has had some of the experiences it details. It is the sort of book you will want to own and become familiar with, the sort you will want to loan to thoughtful friends. In the multitude of books that are pouring from the press, it is a pleasure to chronicle another that is worth while.

**Chemical Studies of Blood in Leprosy.**—The results of chemical studies of the blood of fifty lepers with regard to chlorides, cholesterol, serum calcium, phosphorus and the icteric index is reported by Morales-Otero and Hernandez. Leprosy in itself affects very little, if at all, the concentration of serum calcium, blood chlorides or phosphorus, regardless of the type, extent or duration of the disease. If a definite increase of these ingredients is found in leprosy, it is usually due to some other concurrent condition. Cholesterol was found to be slightly reduced in lepers when compared with normal groups. Usually the group of cases treated with the ethyl esters of chaumoogra oil had slightly higher cholesterol values than the untreated cases or those treated by other methods.

## SPECIAL ADDRESSES

## EPHRAIM McDOWELL—THE MATURED PRODUCT OF HIS LABOR\*

G. A. HENDON, M. D., F. A. C. S.,

Louisville, Ky.

Mr. Chairman, Ladies and Gentlemen, Members of the Southern Medical Association: In obedience to established precedence and in accordance with my own sentiment, I desire to express my grateful acknowledgment of the honor that has been conferred upon me in connection with this occasion.

We are assembled here to pay one more tribute to one of the greatest benefactors the human race has even known; to lay one more laurel upon the post humous brow of Ephraim McDowell; to publicly, and I hope periodically, acknowledge the obligation we owe to his skill, his courage and his wisdom. His name has fallen in reverence from more lips and has been spoken in grateful accents and terms of affection in more different tongues than any that has ever graced the annals of this commonwealth. I am convinced without fear of encountering contrary opinion, I can place the name of McDowell at the head of the honor roll of his state.

I say this with full realization of the fact that Kentucky has been so abundantly blessed in the distinction of her sons and daughters that even without McDowell she would prove a dangerous, if not successful rival in a contest for like supremacy against any other state in this union.

But it shall not be the object of my effort to hold up for your contemplation the glittering surface of his fame, nor to dazzle your vision with the resplendant radiance of his immortal genius. Nor shall I attempt to marshal in parade the shining attributes of his noble character to challenge your admiration and win the plaudits of your pride. That is a theme that has engaged the tutored skill and superb talent of the masters in the art of character delineation and biographic narrative and upon which they have wrought with rare and unusual charm and unparalleled success.

It would be an unpardonable conceit in me with my crude and unlettered faculties to presume to amplify their labors or to adorn their efforts. I refer more particularly to the essay of Dr. John D. Jackson of Danville, Ky., printed in 1873, by the Louisville and Richmond Medical Review. In this we find the most intimate and personal tracings of McDowell's career. Dr. Jackson was better fitted for this task than any of McDowell's biographers, because, in addition to his lit-

erary qualifications, which were of the highest order, and his accomplishments as a scholar, he possessed the advantage of practicing medicine and living among the very same people that McDowell had served. He labored in the master's own vineyard. To him belongs the credit of being the first to propose a monument to be erected by public subscription to McDowell's memory. Also the address delivered by Dr. Samuel D. Gross, the author of American Surgery, upon the dedication of McDowell's Monument in May, 1879. Gross' eulogy on that occasion was a classic of its kind and reflects tremendous credit both upon the author and the object of his praise.

In December, 1909, Dr. Louis McMurtry, who has the facile princeps of his period, both with the scalpel and the pen, delivered the address at the centennial celebration of McDowell's first ovariectomy, which was held by the American Society of Obstetricians and Gynecologists.

These three gifted apostles of science and letters adequately tell the story and amply reflect the glory of McDowell, his useful life and his notable achievements. I shall, therefore, be content if I can by some elucidation draw your attention to the matured product of his labor—Modern Abdominal Surgery—an art which stands today in the realm of science as a comparison to the monarch of the forest beneath whose grateful umbrage countless thousands have sought refuge and found relief from their sufferings and deliverance from their afflictions. It was McDowell who planted the seed in the wilderness and nursed the tender sprout with maternal care and vestal vigilance until the succeeding sapling became so firmly rooted in the soil of truth and toughened in the fiber of fact that it not only resisted but defied the scepticism of the incredulous, the thunder of authority and the bolts that were hurled against it from the seats of the mighty. Even at the risk of tiring you with the tedium of a twice-told tale, I find it essential to my purpose to present a brief survey of the progress and development of abdominal surgery, which is the matured, but not the finished product of McDowell's genius. Beginning with his first ovariectomy, which he performed for Mrs. Jane Todd Crawford in December, 1809, I can do no better than submit his own report as published in the Philadelphia Eclectic Repository and Analytical Review of October, 1816 and a letter written January 2, 1829, to Mr. Robert Thompson, a student of medicine in the University of Pennsylvania.

“Case I. In December, 1809, I was called to see a Mrs. Crawford, who had for several months thought herself pregnant. She was affected with pain similar to labor pains, for

\*Delivered at the Unveiling of the Niehaus Statue of McDowell in the Capitol, Frankfort, November 15, 1930.



which she could find no relief. So strong was the presumption of her being in the last stage of pregnancy, that two physicians, who were consulted in her case, requested my aid in delivering her. The abdomen was considerably enlarged, and had the appearance of pregnancy, though the inclination of the tumor was to one side, admitting of an easy removal to the other. Upon examination, per vaginam, I found nothing in the uterus, which induced the conclusion that it might be an enlarged ovarium. Having never seen so large a substance extracted, nor heard of an attempt or success attending any operation such as this required, I gave to the unhappy woman information of her dangerous situation. She appeared willing to undergo an experiment, which I promised to perform, if she would come to Danville, the town where I live, a distance of sixty miles from her place of residence. This appeared almost impracticable by any though the most favorable conveyance, though she performed the journey in a few days on horseback. With the assistance of my nephew and colleague, James McDowell, M. D., I commenced the operation, which was concluded as follows:

Having placed her on a table of the ordinary height, on her back, and removed all her dressing which might in any way impede the operation, I made an incision about three inches long, from the musculus rectus abdominis, on the left side, continuing the same nine inches in length, parallel with the fibers of the above named muscle, extending into the cavity of the abdomen, the parietes of which were a good deal contused, which we ascribed to the resting of the tumor on the horn of the saddle during the journey. The tumor then appeared full in view, but was so large that we could not take it away entire. We put a strong ligature around the Fallopian tube near to the uterus; we then cut open the tumor, which was the ovarium, and the fimbriated part of the Fallopian tube very much enlarged. We took out fifteen pounds of a dirty, gelatinous-looking substance; after which we cut through the Fallopian and extracted the sac, which weighed seven pounds and a half. As soon as the external opening was made, the intestines rushed out upon the table, and so completely was the abdomen filled by tumor, that they could not be replaced during the operation, which was terminated in about twenty-five minutes. We then turned her upon her left side, so as to permit the blood to escape, after which we closed the external opening with the interrupted suture, leaving out at the lower end of the incision the ligature which surrounded the Fallopian tube. Between every two stitches we put a strip of

adhesive plaster, which, by keeping the parts in contact, hastened the healing of the incision. We then applied the usual dressing, put her to bed, and prescribed a strict observance of the antiphlogistic regimen. In five days I visited her, and much to my astonishment found her engaged in making up her bed. I gave her particular caution for the future and in twenty-five days she returned home, as she came, in good health, which she continues to enjoy."

Danville, Jan. 2, 1829.

Mr. Robert Thompson, Student of Medicine,  
No 59 Spruce Street,  
Philadelphia, Pa.

Sir:

At the request of your father I take the liberty of addressing you a letter giving you a short account of the circumstances which lead to the first operation for diseased ovary. I was sent for in 1809 to deliver a Mrs. Crawford near Greentown of twins, as the two attending physicians supposed. Upon examination per vagina I soon ascertained that she was not pregnant, but had a large tumor in the abdomen which moved easily from side to side. I told the lady I could do her no good and candidly stated to her her deplorable situation; informed her that John Bell, Hunter Home, and Wood, four of the first and most eminent surgeons in England and Scotland had uniformly declared in their cases that such danger of peritoneal inflammation, that opening the abdomen to extract the tumor was inevitable death. But notwithstanding this, if she thought herself prepared to die, I would take the lump from her if she could come to Danville. She came in a few days after my return home and in six days I opened her side and extracted one of the ovaries, which from its diseased and enlarged state weighed upwards of twenty pounds. The intestines, as soon as an opening was made, run out upon the table, remained out about twenty-five minutes, and it being Christmas Day they became so cold that I thought proper to bathe them in tepid water previous to my replacing them. I then returned them, stitched up the wound and she was perfectly well in twenty-five days. Since that time I have operated eleven times and have lost but one. I now can tell at once when relief can be obtained by an examination of the tumor, if it floats freely from side to side or appears free from attachments except at the lower part of the abdomen. I advise the operation, having no fear from the inflammation that may ensue. From being successful from the above operations several young gentlemen with ruptures have come to me. I have uniformly cut the ring open, put the intestines up if down, thus cut the



ring all round every quarter of an inch, then propped the parts closely together and in every case the cure has been perfect. Therefore, it appears to me a mere humbug about the danger of the peritoneal inflammation so much talked about by most surgeons.

Wishing you health and happiness, I am

Yours sincerely,

E. McDOWELL.

These letters were copied from the Medical Pioneers of Kentucky by Dr. J. N. McCormack and from which most of my information concerning McDowell and his followers was derived.

The most remarkable trait of character displayed by McDowell in Mrs. Crawford's case is his unreserved candor in stating the possibilities of her proposed operation. He frankly tells her that the four leading surgeons of England and Scotland pronounced the invasion of the peritoneal cavity as equivalent to certain death and proposes that if she is prepared to die to come to Danville and he will operate. McDowell's candor and frankness on this occasion is only equalled by Mrs. Crawford's dauntless courage and valiant spirit. For she not only accepted the hazards of an experimental operation, one that had never been tried before, but subjected herself to very grave and serious hardships to have an opportunity to do so. For example she rode horseback a distance of sixty miles through an almost trackless forest in the month of December when the weather must have been cold and inclement, being at the time burdened with an abdominal tumor weighing twenty two pounds, in order that she might test with her own life the mysteries of an untried, unknown, unauthorized operation. A procedure that had been repudiated by the highest constituted authorities of the day and age. She knew full well she must endure the ordeal in full possession of her faculties. There was to be no blissful sleep to obtund the pain as the keen edge of the knife cut through her palpitating flesh, to say nothing of hemorrhage and subsequent infection which she had explained to her.

The whole picture is one of courage, fortitude and faith that is unparalleled in the annals of medicine and utterly passes my comprehension. No doubt there was the solicitude of friends and relatives to be reckoned with and declined. Their advice and warnings and fond farewells had to be tearfully received and regretfully considered. If their gloomy forebodings had been realized in a fatal outcome what a calamity it would have been to befall humanity; abdominal surgery retarded at least one hundred years. After a few days' rest the operation was performed and in five days, to the astonishment

of McDowell and her attendants, she was out of bed and "tidying up her room." She lived thirty-one years after her operation and tradition has it bore a son who became mayor of Louisville.

In 1816, seven years later, McDowell sent a report of Mrs. Crawford's case and two others, all successful, to Dr. Physick, Professor of Surgery in the University of Pennsylvania, and to Dr. John Bell, his preceptor in Edinburgh.

The copy sent to Dr. Physick was contemptuously ignored, but the manuscript fell into the hands of Dr. James, Professor of Obstetrics, by whom it was read without comment to the class and later published in the October, 1816, issue of the Philadelphia Eclectic Reportory and Analytical Review. The copy, which he sent to John Bell never reached him, as he was on the continent at the time and died before returning to Scotland. The manuscript, however, fell into the hands of Mr. Lizars, who had it published in 1825 in the Edinburgh Review, which was nine years after its appearance in America, a circumstance that illustrates how slowly knowledge was diffused in those days.

When the publication of McDowell's first group of ovariectomies was received in London, Dr. James Johnson, Editor of the London Medico Chirurgical Review, was, as Cross says, especially "savage and satirical" in his editorial comments. He absolutely denied McDowell's right to have his claims considered and dubbed him a backwoods surgeon. He could not imagine such a person being the pioneer in a new branch of surgery. When told of McDowell's first case and her rapid recovery, he held up his hands in holy horror and in tones of outraged dignity exclaimed, "Credat Judocus non Ego." In 1827, eleven years later, he published the following apologetic reference. "There were circumstances in the narrative of some of the first cases that raised misgivings in our minds for which uncharitableness we ask pardon of God and of Dr. Ephraim McDowell of Danville." Quite a belated acknowledgement I should say—so much so as to make it appear ungracious.

The history of abdominal surgery might, with some advantage, be divided for study into four eras: the McDowell Era, the Anaesthetic Era, the Antiseptic Era, the Aseptic Era.

The McDowell era extended from 1809 to 1829, during which time little was done aside from McDowell's own work, which consisted of twelve cases with four deaths. One successful case was done by Dr. Nathan Smith of New Haven, Conn.; one by Dr. Alban G. Smith, a partner of McDowell, in 1823;

one by Dr. David L. Rogers of New York in 1829. In 1825 Dr. Lizars of Edinburgh published four cases with three deaths. This mortality was sufficient to throw the operation into disrepute on the other side of the Atlantic, which, indeed, it did as nothing more was attempted until nearly twenty years later. It is quite a notable fact that McDowell's record of 33 1-3 per cent mortality remained, with one exception, unexcelled until the dawn of the antiseptic era. There was an interim of twenty years from 1823 to 1843 when this young giant seemed to slumber. The only signs of life were a fitful dream or two in the early watches of the night, but it was the sleep of a healthy, vigorous child growing into robust adolescence.

In 1843 the awakening came. The Renaissance prevailed through the efforts of Mr. Charles Clay of Manchester, England, and Mr. Frederick Bird of London, also the Atlee brothers, John and Washington, of Philadelphia. They were quickly reinforced by Taylor Bradford of Kentucky, Alexander Dunlap of Ohio, Gailard Thomas, Guman Kimball and Briggs of Nashville, Spencer Wells of London and Thomas Keith of Edinburgh. The time was most propitious because the discovery of anaesthesia by Crawford Long of Georgia in 1844, "crashed the barrier," and supplied a powerful impetus to all surgery that could not be restrained. As Holmes so beautifully expressed the idea: "The fiercest extremity of suffering has been steeped in the waters of forgetfulness and the deepest furrow in the knotted brow of agony smoothed away forever."

As a result surgical enthusiasm compromised and in some instance completely blinded surgical judgment and surgical mortality rode rather a high horse. Dr. Taylor Bradford of Augusta, Kentucky, was the only operator who excelled McDowell's record. He reported thirty ovariectomies with three deaths, a mortality of 10 per cent. Anaesthesia had vastly increased the number of operations without reducing the death rate. In fact the death rate of all major operations prior to the use of antiseptics, with the exception of lithotomy, was 33 1-3 per cent.

I might add here that the revival of ovariectomy met with sterner and more determined opposition both from the profession and the public than its origin ever did. Even the great Benjamin Dudley wrote a letter to Dr. Bradford clearly voicing his disapproval and Mr. Clay in England writes that he "had to wade through much vexatious opposition, great misapprehensions and gross misunderstandings." While Washington Atlee says he was everywhere derided, denounced by the general profession, the medical societies, med-

ical colleges and by his own colleagues, misrepresented before the public and pointed out as a dangerous man and a murderer.

The antiseptic era began about 1870, although Lister published his early work in 1865. In 1878, Sir Spencer Wells admitted that he believed "the antiseptic system would certainly reduce mortality and expedite convalescence," and Mr. Keith by "observing the most rigid rules of antisepsis" was enabled to perform 49 successive ovariectomies without a death; while Cross persisted in his declaration that the reduction of mortality was due to increased experience and greater skill. He made the statement that "surgeons of prominence on neither side of the Atlantic have little, if any, faith in Mr. Lister's Carbolic Acid system." While about the same time another one of America's foremost surgeons was proclaiming in clarion tones that the antiseptic system "would never die because it was already dead,"

Despite all these authoritative denunciations and proclamations surgical mortality rapidly declined to 10 per cent under the protecting agent of antiseptics.

In 1880 Mr. Lawson Tait of Birmingham introduced the aseptic system, which further reduced mortality to 5 per cent, and in 1900 Halsted came forward with rubber gloves which is an elaborated detail of aseptic surgery, then the mortality fell almost to the vanishing point.

It is impossible to estimate the years of life and usefulness and happiness that have been extended to women by the operation instituted by McDowell. In 1870, Edmund Reasley estimated that 30,000 years had been added to the span of life for women in America and Great Britain alone and up to 1850 only fifty ovariectomies had been done, including the twelve cases reported by McDowell. There are five names that are inseparately linked with the four eras above referred to and they shine like lighthouses on a dangerous coast. To the McDowell era there is nothing but McDowell, unless you include Mrs. Crawford. To the Anaesthetic period the name of Crawford Long lends its radiance. To the Antiseptic period Joseph Lister is the patron saint. To Lawson Tait we owe Asepsis, which has permitted surgeons to explore with impunity the most remote and sacred recesses of the body. To William Halsted we are indebted for rubber gloves, which not only removed the last vestige of legitimate risk of infection to the patient, but throws the boom of protection about the surgeon himself. Of the five men mentioned in this connection, three are American and all three, if alive today, would geographically belong to the Southern Medi-



cal Association.

It would hardly be fair to the subject of our discourse to speak entirely of his work and nothing of the man himself. Ephraim McDowell came of a lineage of which he might well be proud. His father was Judge Samuel McDowell, a member of the Virginia house of Burgesses, and his mother was Sarah McClung, one of the real F. F. V.s Ephraim was born in Rockbridge County, Virginia, on November 11, 1771. In 1773, when he was two years old, his father was appointed to the position of land commissioner of Kentucky, then a part of the Old Dominion. This luxurious commonwealth was then an uncharted wilderness and the pioneers were very busy earning for her the pseudonym of the dark and bloody ground. The crack of the rifle and the scream of the bullet and the howl of the savage mingled their tones in unholy music to break the stillness of her silent glades.

Amid scenes like these, where courage, resourcefulness and self-reliance decided the issues of life and death, our hero grew to adolescence. He imbibed from the atmosphere of his environment those qualities of mind and body that matured into the man of independent thought and decisive action, who could be bold, conservative or crafty as occasion required.

His early education was obtained at private schools in Georgetown and Bardstown, Kentucky. When he decided to adopt medicine as a profession, he entered the office of Dr. Humphrey of Staunton, Virginia, as a student. He remained there two years, and Dr. Humphrey, being a graduate of the University of Edinburgh and, being possessed of ample means, naturally chose that institution as his alma mater. He spent two years in Edinburgh studying in the University and as a member of the private class of Dr. John Bell, but did not take a degree.

Bell was at that time the leading surgeon of Europe and was a man of marvelous influence over students. He had a charming personality and was a most fascinating speaker. McDowell was deeply impressed by Bell's description of the pitiful plight of victims of abdominal tumors. Three to four years of indescribable suffering and nothing to look forward to but certain death. That he was not only impressed but inspired by Bell's teaching is evidenced by the fact that he sent him a written report of his first group of cases.

When he returned to Kentucky he located in his hometown, Danville. His intrinsic worth and natural qualifications together with his prestige of a European education all combined to place him in the position of the fore-

most surgeon west of the Alleghany mountains. He performed all the operations then in vogue with rare skill and judgement and unparalleled success. He did 22 lithotomies without a death, one of which was performed upon James A. Polk, of Tennessee, who afterward became President of the United States. His fame spread over the entire western frontier and patients sought him from far and near. He easily maintained his leadership until the time of his death, which occurred in June, 1830.

He wrote very little for publication. One paper reporting three cases of ovariectomy, was published in 1816 and another reporting two more in 1919. In 1826 he addressed a letter to the physicians of the west in defense of his right of priority in ovariectomy, which had been assailed by his own nephew. In 1807 the Medical Society of Philadelphia sent him its diploma of membership and in 1823 the University of Maryland conferred upon him the degree of Doctor of Medicine. This was a curious twist of fate being recognized as a doctor fourteen years after performing the world's first ovariectomy and repeating the procedure twelve times, thereby initiating a new branch of science in a new world. In 1802 he married Sarah, the daughter of Isaac Shelby, the first Governor of Kentucky. Mrs. McDowell survived her distinguished husband ten years and they had six children. McDowell was public spirited and took an active part in matters pertaining to the public good and the social welfare of his community. He was a member of the first board of Trustees of Centre College and donated the ground upon which the first Episcopal church in Danville was built.

He died at the age of 59 of a two weeks illness, the nature of which history is not positive. Therefore he was not permitted to behold the fruition of his labor except in his own locality. In fact no physician ever experiences the gratification of witnessing the full measure of his success, for no new branch of medical knowledge ever matures and bears its fruit in one generation. But a review of the career and sublime achievement of McDowell produces in every physician a feeling of compensatory remuneration for we know that the noblest visions of the statesman "must dissolve in the pitiless logic of events." That the voice of the orator grows fainter and fainter even unto stillness as the scroll of time relentlessly unrolls. The sacrifices of the patriot and the valiant deeds of the soldier become immured within the seclusion of library walls, but the achievement of this humble village surgeon, though wrought in the obscurity of a wilderness, has like the ever widening waves of "the inviolate sea" created with the

precious balm of healing swelling with the momentum of its noble purpose, gathering more power and renewed vigor at every period of their progress, have laved the shores of every land and every clime even unto the lessening of the toll and human suffering and the lengthening of the span of human life.

### JANE TODD CRAWFORD—THE MODEL PATIENT\*

By MRS. P. E. BLACKERBY, Past President

Woman's Auxiliary to the Kentucky State Medical Association, Louisville.

Ladies and Gentlemen:

It is peculiarly gratifying to the Women's Auxiliaries to the Kentucky State and the Southern Medical Associations that we should have been invited to be represented on this historic occasion when the medical profession is paying its tribute to the memory of Ephraim McDowell, of whom Doctor David W. Yandell, when contrasting the fame of the statesman, the orators and the military men of Kentucky with that of McDowell, said: "Chief among all of these is he who bears the mark of our guild, Ephraim McDowell; for the labors of the statesmen will give way to the pitiless logic of events, the voice of the orator grow fainter in the coming ages, and the deeds of the soldier eventually find place only in the library of the students of military campaigns, while the achievements of the village surgeon, like the widening waves of the inviolate sea, shall reach the uttermost shores of time, hailed by all civilization as having lessened the suffering and lengthened the span of human life."

In the history of no other state or nation has its medical profession contributed more glorious pages as the record of its service of humanity than have the physicians of Kentucky. Towering amongst these stands this pioneer surgeon, whose lineaments stand revealed before us by the art of the sculptor, to live forever as a memorial to one of the greatest servants of mankind. It is fitting that this monument should be presented to the Commonwealth so glorified by its organized medical profession. It is fitting that it should proudly stand in the Rotunda of our beautiful Capitol, that all who behold it in these Halls of State may be stimulated by his illustrious example. Physicians, yes, statesmen and citizens, too, may better serve their kind by familiarizing themselves with the story of this man and by dwelling upon the matured product of his labor, as the great orator of this occasion has so well done.

It is fitting, too, that a woman should have been selected to pay the tribute of womankind to the man whose courage and scientific study opened what seems to us as the magic doors which restore health and peace and comfort and usefulness. We are appalled as we contemplate the untold sufferings of our sex through the ages before McDowell inaugurated the era of modern surgery. One shudders as one thinks of the hopeless horror of the miserable sufferer condemned helplessly to her deathbed.

Picture for yourself the scene on those winter days of 1809, when Jane Todd Crawford lay suffering in her farm home, in Green County. Already the mother of five children she had experienced the extremity of pain and the happiest reward within the hope of her sex—motherhood. Now, however, stretched upon her bed of pain, the kindly ministrations of her family were only able to make her conscious of their love and sympathy. She was blessed, as all are blessed who have that happy experience, with the service of her family physician. Women know best what this means. Too frequently, they, themselves, are the sufferers from illness. When they are not, the strain upon them is the greater, for the child they have borne or the husband and helpmate is in danger. Then, besides her faith in the Great Physician, her human helper is her family physician. It is he who alleviates the pain, assuages the fever, exorcises the infection, inculcates confidence, restores hope. Mrs. Crawford was fortunate in having such intimate guidance, and yet there arrived the time when the family physician became hopeless, too. And, as family physicians, realizing their responsibility for a human life, have always done, and will always do, her family physician sought the aid of the foremost specialist of his time, the first surgeon of the scattered community that had so recently been transformed from an Indian hunting ground to a proud, though still feeble, Commonwealth.

Responding to this urgent call Doctor McDowell rode over the but recently marked trail through the woods from Danville to her home. He found her trouble really to be an ovarian tumor, immediately threatening a fatal end.

To quote the graphic description of Doctor Samuel Gross:

"After a most thorough and critical examination, Doctor McDowell informed his patient, a woman of unusual courage and strength of mind, that the only chance for relief was the excision of the diseased mass (An Ovarian Tumor). He explained to her, with great clearness and fidelity, the nature and hazard of the operation, he told her that he had never performed it, but that he was ready

\*Delivered at the Unveiling of the Niehaus Statue of McDowell in the Capitol, Frankfort, Ky., November 15, 1930.



if she were willing, to undertake it, and risk his reputation upon the issue, adding that it was an experiment, but an experiment well worthy of trial. Mrs. Crawford listened to the surgeon with great patience and coolness, and, at the close of the interview, promptly assured him that she was not only willing, but ready to submit to his decision; asserting that any mode of death, suicide excepted, was preferable to the ceaseless agony which she was enduring, and that she would hazard anything that held out even the most remote prospect of relief. The result has been long before the profession. Mrs. Crawford submitted to the operation, and thus became the first subject of ovariectomy."

This courageous woman was 47 at the time of the operation, and, as a result of it her life was extended thirty-one more years and she died in 1841 at the age of 78.

In his description of the operation, Doctor McDowell stated that Mrs. Crawford had been affected with continuous pains for which she could find no relief. After having determined that it was a tumor of the ovary, he states, "Having never seen so large a substance extracted, nor heard of any attempt or success attending any operation such as this required, I gave to the unhappy woman information of her dangerous situation. She appeared willing to undergo an experiment, which I promised to perform, if she would come to Danville the town where I live a distance of sixty miles from her place of residence. This appeared almost impracticable though she performed the journey in a few days on horseback."

Mrs. A. T. McCormack has graphically drawn the picture of the scene:

"For a moment, let us go back to that primitive operating room improvised in the home of Doctor McDowell in Danville, which is still standing, and visualize the scene.

"The room is rather bare and quite cold, too, for it is a wintery day, this December 13, 1809. In the center of the room, near the window, is a long wooden table covered with a folded blanket. On this lies a woman patient—not in surgical gown and stockings, but apparently, fully dressed, her head resting on a pillow covered with a white slip. Her abdomen, deformed by the massive growth, forms a veritable hill under the light blanket that covers her.

"She is a courageous woman, a quiet, practical woman, unafraid of plunging into the unknown, a pioneer all her life, used to the hardships and the hazards of the frontier, yet a woman of fine feeling and tender sensibilities. But, here she is pioneering in a new field. Pioneering for you and for me even though she did not realize it.

"Actually, she is about to submit to an

experiment on her own body, one that had never before been accomplished. Her abdomen is to be deliberately cut open with a knife by this equally brave and equally heroic man, several years younger than herself, all for the purpose of determining whether or not he can relieve her agony by removing this painful growth from her interior. It is a new experiment and, although the outcome is questionable, she is determined to carry through her share in it.

"But—how does this woman feel under these circumstances? What does she say and do during that twenty-five minutes ordeal?

"From her grandson, James Crawford Brown, it was learned that during the operation she occupied herself repeating the Psalms. The strength, the beauty, the sustaining power of the Psalms to a brave woman, who was also an idealist, could scarcely be better demonstrated, for Jane Crawford had no other comfort, not even a relative standing near, no anesthetic whatsoever, either local or general, not even a hypodermic of morphine, for neither anesthetics nor morphia had been discovered. She had only a supreme faith in her Heavenly Father, a hopeful dependence in her surgeon and the indomitable courage of a wonder woman to carry her through this crucial ordeal that has blazed the trail of abdominal surgery bringing its inestimable relief to countless thousands of women since. And—let us remember that although today the blessed relief of anesthesia brings total oblivion for the patient, Jane Crawford went through the experiment perfectly conscious of every movement, every word and every glance of the surgeon and his assistants. To restrain her involuntary muscles, men held down her arms and legs with force in order to permit the surgeon to work."

Doctor McDowell concluded his description of the operation and its results as follows: "In five days I visited her, and, much to my astonishment, found her engaged in making her bed. I gave her particular caution for the future and she returned, home, as she came, in good health, which she continues to enjoy."

Upon the occasion of the dedication of the monument to McDowell at Danville in 1879, Doctor Lewis Sayre of New York, then President of the American Medical Association, said:

"Another fact strikes me very forcibly, Mr. President, and that is the heroic character of the woman who permitted this experimental operation to be performed upon her. The women of Kentucky in that period of her early history were heroic and courageous, accustomed to brave the dangers of the tomahawk and

scalping knife, and had more self-reliance and true heroism than is generally found in the more refined society of city life; and hence the courage of Mrs. Crawford, who, conscious that death was inevitable from the disease with which she suffered, so soon as this village doctor explained to her his plan of affording her relief, and convinced her judgment that it was feasible, immediately replied, 'Doctor, I am ready for the operation; please proceed at once and perform it.' All honor to Mrs. Crawford! Let her name and that of Ephraim McDowell pass down in history together as the founders of ovariectomy."

Doctor Samuel D. Gross, one of the famous surgeons of the world and one of the organizers and presidents of the Kentucky State Medical Association and of the American Medical Association, said,

"All honor to the man who had the courage and skill to do that which no man had ever dared to do before! All honor, too, to the heroic woman who, with death literally staring her in the face, was the first to submit calmly and resignedly to what certainly was at the time a surgical experiment. To her, too, let a monument be erected, not by the Kentucky State Medical Society nor by the citizens of Kentucky, but by suffering women, who, with her example before them, have been the recipients of the inestimable boon of ovariectomy, with a new lease on their lives and with immunity from subsequent discomfort and distress. I know of no greater example in all history of heroism than that displayed by this noble woman in submitting to an untried operation."

To these tributes from these great authorities I am honored today to add my humbler note, my meed of praise to this heroic, pioneer woman and to urge those who contemplate this noble monument to consider, along with the fame of the surgeon, the essential part played by this model patient.

It is in the program of the Woman's Auxiliary to the Kentucky State Medical Association to some day fittingly honor the memory of Jane Crawford with a service similar to this which brings us here today. Thoughtful physicians and grateful womanhood will encourage our efforts in this direction.

**Diagnostic Value of Xiphoid Pain.**—Da Silva-Mello shows that a painful point located at the xiphoid process is often an important pathognomonic symptom in lesions of the upper part of the abdomen, especially duodenal ulcers. This painful point is definitely localized directly over the cartilage and is the most objective of the abdominal points. It is easily discovered by a physician experienced in the technic of abdominal palpation.

## SCIENTIFIC EDITORIAL

### UROGRAPHY

A diagnostic study of kidney pathology is quite satisfactory now when compared with the limitations of two decades ago when the finding of albumin and casts charted the frontiers of renal investigation.

X-ray study of the bladder, ureters and kidneys with radiopaque material has added so much to the knowledge already obtained through pathological study that the chapter on Urinary tract disease has been rewritten. This study, however, necessitated cystoscopy and ureteral catheterization, procedures more or less painful and sometimes difficult. Likewise, it implied a special training possessed by relatively few and, hence, carrying a cost far from negligible to many patients.

The introduction of intravenous urography constitutes another step in the diagnostic study of the urinary tract to which the past few years has contributed much. The least that may be said is that it appears that the procedure will be a most helpful addition to the measures hitherto employed. There may be conditions, anatomic, technical or pathologic, which make the older methods inconvenient or impossible. That it will supplant the instrumental methods now used is doubtful; that it may reveal a newer pathology is possible; that it may prove even superior to them in certain conditions is likely and that it will become the routine initial procedure is probable. It bids fair to give the internist a not inconsiderable part of the diagnostic study in urology. It was in urography that the Halogen group was first determined to have a value as radiopaque media some twenty-four years ago. The first compounds of iodine, after it was determined that the Halogen salt was preferable to the others, were capable of inducing serious irritation of the urinary tract and progress was slow. During the past two years refinements have been made, reducing the iodine content and substituting less toxic radicals, until preparations relatively safe are now available.

Of the two best adapted for intravenous use. Pyelognost and Uroselectan, the latter has had the widest use in this country. It contains 42 per cent iodine, is freely soluble in water, is neutral and is very stable. Sterilization by boiling is reported feasible. It is excreted by the kidney, under normal conditions, to 90 and 100 per cent and apparently undergoes no chemical change in the body. Iodism has not been reported and the writer has not observed it.

Dosage: Animal experiments would indicate a very low toxicity. Three grams per kilo of body weight given intravenously re-



peatedly to a rabbit is stated to have caused no ill effects. Observations on human subjects have not been made in sufficient number to speak dogmatically but no ill effects have been reported in the dosage necessary for a satisfactory shadow. Swick originally used 40 grams for an average adult and later increased it to 60 grams. The dose should be based on body weight and satisfactory pictures are obtained on 10 grams per kilo of body weight.

**Administration:** It must be given intravenously. The required dose of the agent is dissolved in warm double distilled water, 2cc. for each gram of the agent, filtered twice through filter paper and sterilized in a water bath or autoclaved at 15 pounds pressure for 30 minutes. Luer syringes are used in preference to gravity injection and the injection should cover a period of 15 minutes or at a rate of 6 c. c. per minute. The solution should be at body temperature.

**Reactions:** A sense of warmth with some thirst is usually experienced during the injection. Transient tremor may occur and occasionally some nausea while vomiting rarely occurs. The pulse may be accelerated some 10 to 15 beats per minute and the blood pressure may rise a few points but they usually return to normal in 15 to 20 minutes.

**X-ray Technique:** The bladder is emptied and a film with a Buckey diaphragm made of the renal and bladder regions before the agent is injected. The first Urogram is made 15 minutes, the second at 45 minutes, a third at 75 minutes after the injection is completed, or a Urogram may be made every 20 minutes until a satisfactory film is obtained or until 5 are taken. If no shadow or an unsatisfactory one is obtained by the end of 100 minutes kidney function is considered absent, or very poor. After the second film is made the bladder is partly emptied for the purpose of visualizing the vesical ends of the ureters. The technique of the various roentgenologists varies somewhat, as well as does that of any one operator for different patients. An average would be amperage 40 to 60, distance 28 to 30 inches and an exposure from 2 to 5 seconds. A Potter-Buckey grid is used and a compression band is desirable. By examination with the fluoroscope one may determine the time of maximum visualization, thus taking fewer urograms.

**Field of Application:** When cystoscopy and ureteral catheterization are impossible as in transplanted ureters, mechanical or pathological obstruction of urethra or ureters; when they are undesirable as in infections of lower urinary tract, or in children it would appear the desirable avenue of approach. In tuberculosis of the urinary tract it would ap-

pear to be the method of choice since unpleasant reactions with retrograde urography may occur. Then, in most of the conditions where catheter urography appears indicated the intravenous method may save the patient such an ordeal. By it malformations, calculus, pyonephrosis, hydronephrosis, ureteral kinks, and stricture, bladder deformities, etc., may be diagnosed. It will also be valuable in confirming or supplementing the findings of other methods of study. It would also seem preferable in nephroposis as the patient can stand and thus the degree of mobility could be determined as well as observing kinks in ureters which obtain only when a kidney is at the low level of its orbit.

The method may further be of value as a means of estimation of renal function. In marked decrease of kidney function a very faint shadow or none at all may result. By fluoroscopic study it may even be possible to compare the degree of function of the two kidneys as to time. Broadly speaking the rate of excretion bears a valid relationship to the renal function. Uroselectan can be easily recovered from the urine; a heavy precipitate obtains when HCl is added and an approximate estimate of elimination recorded. The specific gravity also rises with the excretion of the agent reaching as high as 1050. No shadow may be obtained at all in absence of kidney or in a marked renal deficiency or the shadow may be too faint for diagnostic interpretation in lesser degree of deficiency. This and its cost may be considered disadvantages.

Some contraindications are mentioned by observers some of which we question. For example it is advised that the method never be used in thyrotoxicosis, no distinction being made as to cause. It certainly would not be contraindicated in exophthalmic goiter. Pregnancy should constitute a contraindication when likewise instrumental urography is contraindicated. Acute nephritis should be listed also but it is yet to be determined if chronic nephritis be a contraindication.

VIRGIL E. SIMPSON

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**... Separation of Nates by Adhesive Plaster During Operation for Sinus.**—Bears uses strips of adhesive plaster, from 2 to 3 inches in width, and long enough so that one end can be fastened to the operating room table. The other end is attached to the buttock to make traction. They are placed far enough up on the buttocks to insure firm adhesion but should not encroach too closely on the operative field. After the cyst or sinus has been excised and to aid skin apposition, the adhesive plaster is cut from its attachment to the table. The adhesive strips are completely removed from the skin after the completion of the operation.

## ORIGINAL ARTICLES

## CHRONIC PURULENT OTITIS MEDIA\*

HENRY G. REYNOLDS, M. D.,

Paducah

In the discussion of this subject, before a body of men in general practice, the more practical we can be in its handling, the more benefit you will derive from its discussion.

Chronically purulent ears interest you, particularly from your viewpoint as to whether they are dangerous or non-dangerous. Someone, (Lavigne), has classified them into those who should always be operated on, those who should never be operated on, and those who should be operated on only after medical treatment has been given a trial.

It is possible for a trained Otologist to so classify the disease clinically, that he can predict the outcome in a given case and decide at one examination, under which one of the three classifications, his patient should be placed.

I suppose you have noticed the gradual falling off in radical mastoid surgery, and the trend of Otologist toward a more conservative attitude toward chronic purulent otitis media in the last few years. This can be accounted for in an increase in the knowledge and learning in Otology in America and a universal realization that a radical mastoid operation is a thing to be avoided within the limits of safety.

This conservative attitude is exemplified in a statement by Kerrison: "We should not be slaves to the dogma, too often repeated in otological literature, that aural discharge is necessarily of itself a danger signal, which when persistent calls for operative intervention.

If we can satisfy ourselves that the discharge is simply the logical produce of exposed mucous membrane, or healthy granulation tissue, and there is no evidence of an active suppurative process involving the bone itself, one should not be too ready to interfere with nature's method of conservation."

A chronic purulent otitis media presupposes a previous acute attack. It is generally agreed, I believe, that by far the greatest number of chronic ears are the result of acute otitis media in the exanthema, scarlet fever, measles, influenza, etc. It is therefore your responsibility to see that these cases receive the otologic care that they deserve. You examine the lungs, the urine, the blood and the ear, if pain is complained of, referable to this organ, but how often in a case of pneumonia, after the crisis has passed, and a persistent

temperature, have you been confronted with a spontaneous rupture of the ear drum, at one of your visits. We have all been taught that early incision of the ear drum is the best insurance against mastoid involvement. That is true, but it is only our best chance and not a guarantee against mastoid involvement.

In all acute purulent ear conditions with a bulging membrane, an early extensive incision in a great majority of cases gives us a best chance for an early convalescence and cure, whereas, as you well know, a spontaneous rupture is not a thing to be desired, and certainly has a tendency to invite complications and prolong convalescence.

Among the various causes for purulent otitis media may be mentioned chronic tonsils, adenoids, sinusitis and lowered resistance from any sickness, improper hygienic surroundings, and a thing which has been especially occupying the minds of the medical profession for the last few years is the absence of certain vitamins in the food, particularly of young children.

It is a well known fact, and upon inquiry among my medical friends, I feel that I can testify to it that there is much less chronic purulent otitis media within the last few years than was formerly the case. People are being better informed as to tonsil and adenoid operations. Better educated as to the proper food. Giving early attention to an acute ear, and doctors themselves, have a better knowledge and are realizing the importance that tonsils, adenoids, sinusitis, etc., play in the causation of acute ear troubles.

A great deal of attention has been called in late years to the presence of sinusitis, particularly antrum involvement in little children. Very likely in some of your own patients you have noticed that the removal of tonsils and adenoids seem to have very little effect on the child's well being. In other words, there was not the improvement from the operation that you expected. Such children should be X-rayed for a possible sinus involvement.

We not infrequently have parents bring their children to us with a perfectly performed tonsil operation, an absence of adenoids and with a history that they had not improved satisfactorily, as they had been promised, and upon examination, we frequently find the antrum involved and sometimes the ethmoid sinuses.

This has its bearing on producing acute ears, and in the persistence of chronic ears. There are so many chronic ears that are amenable to cure by conservative medicinal measures, and yet you have no doubt noticed a recurrence of the discharge after a so-called cure.

These cases as a rule are aggravated by im-

\*Read before the Kentucky Medical Association, Sept. 16, 1930, Bowling Green.



proper nose blowing and I am referring in such cases to those who have had proper otologic treatment, where the naso-pharynx, the tonsils and throat and sinus conditions have been properly looked after. Much can be done, by insisting on these people blowing their noses properly, or not blowing at all, but drawing secretions back which is causing a continuance of chronic purulent ears.

I am dwelling on the acute purulent ear because we will accomplish more toward the eradication of the chronic ear by proper attention to the acute condition than in the cure of the chronic condition after it is once established. I might dwell on the complication of acute purulent otitis media such as simple mastoid involvement and the complications that go with this involvement, and the part that climate and food and environment play in the production of acute ear trouble, but with these matters, I am satisfied you are familiar. Furthermore, there are so many of our patients over whom we have no control and our only hope is in educating such people, as is being done, to the importance of early attention to the pathology in the nose and throat.

If a chronic purulent otitis media is once established and granting that the patient is free from sinusitis, and tonsils and adenoids have been removed and that we have excluded tuberculosis and syphilis, in other words, that the patient's only complaint is a pus discharge from the ear, accompanied with deafness. Such patients first require an analysis of their case to determine the best method of procedure to cure them in the shortest length of time. By far the largest percentage of all chronic ears can be cured without resorting to radical operation.

Haskins says that in a private practice, extending over a number of years with a large clientele, he has never yet seen fit to do a radical mastoid in one of his private patients. I am sure that none of you aspire to treating chronic purulent ears, and yet a certain amount of knowledge in such conditions is necessary that you may determine whether or not your patient is receiving the proper attention.

Most chronic ears have a central perforation with a more or less muco-purulent discharge. The perforation may be round or elliptical. It may be in most any location in the drum membrane surface. On the other hand it may be marginal, in other words extending beyond the drum membrane into the bone in which the peripheral edge of the segment of the membrana-tensa and the adjacent part of Shapnell's membrane are destroyed, leaving bare the bony ring to which they are attached.

The marginal perforations may be located at any place around the drum membrane, but such refined diagnosis as this is necessarily in the hands of the attending aurist. They indicate however, destruction of bone, and while not in all instances, in many cases such destruction indicates the necessity for a radical mastoid operation.

Odor from a discharging ear may be due to neglect in cleansing, or to bone destruction. After cleansing the ear thoroughly, preferably with cotton swabs and peroxide, and if the pus is abundant, irrigation, the ear should be dried and filled with 95% alcohol solution. The alcohol evaporates rapidly, leaving a dry ear. Depending on the copiousness of the discharge, if it is great or small, such treatments may have to be carried out several times before we can do away with the odor which is not due to bone destruction. After a lessening of the discharge, it is our custom to furnish our patients with a solution of alcohol and bichloride for use at home. Although it is my opinion that all such cases should be handled by the otologist if possible until they are entirely well.

Another type of chronic ear is that with polyps or granulation tissues. In the case of polyps, they of course should be removed before any treatment is begun and the stumps treated occasionally by some cauterizing agent.

Most granulating tissues can be taken care of by medication and alcohol alone, or in combination with bichloride mercury, or Calots solution which is composed of: Guaiacal 1.0, creosote 5.0, sulphuric ether 30.00, Iodoform 10.0, olive oil 70.0. These and modifications are the formula mostly used. Such treatment does not apply in cholesteatoma, nor should one expect results in diabetes, lues, malignancy, tuberculosis, etc.

One other method of treatment and a more recent one is zinc ionization. Success in this method of treatment is confined particularly to those patients with a muco-purulent discharge and where the perforation is central. Its application is simple and results are frequently obtained in one, two, or three treatments. Its use is limited and the Aurist looks on it only as an addition to his armamentarium, however, a very valuable one.

So far I have only casually referred to the use of water in purulent ears, both acute and chronic. Irrigations have their place. It is my practice on incising an ear drum to use no irrigation to begin with, nor is it used throughout unless the discharge becomes so thick that it serves as a mechanical barrier to a continuous flow, causing pain and fever, then irrigations are used. On the lessening of the discharge, or when the acute stage has

passed, the irrigation is discontinued, and eventually a dry wick introduced lightly. The wick or narrow packing is used also in the chronic ear, provided there is only a slight discharge, and that the patient is instructed to remove it if there is the least discomfort, as it may serve as an obstruction instead of a drain.

Thus far my discussion has been of interest to you principally as preventive of a chronic condition or dealing with a chronicity confined within a small space, the middle ear.

What of the complications? In both the acute and chronically purulent ear, complications arise, the severity of which is influenced to a certain extent by the infecting organism and by the anatomy of the parts involved. It is generally agreed that nearly all acute purulent ears are monomicrobial and it is easily understood that they, by external contamination, become polymicrobial.

The type of infection and the anatomy of the parts occasionally influence some acute ears to become chronic and has to do with the complications. It is claimed by Cheatle that, "when the mastoid is of the infantile or non-pneumatic type, or when the mastoid cells are separated from the surface of the bone by a dense ossious outer cortex, the transition from the acute to the chronic is very probable." On the other hand McKenzie states that "as a rule Cheatle's contention is correct, but that occasionally one finds acute symptoms with signs of acute osteomyelitis in a solid or infantile mastoid on the one hand, and on the other, chronic disease and chronic suppuration may exist in a mastoid which is wholly cellular, from the antrum to the outer cortex and to the tip."

In a practice of several years, I have had to deal with a number of infantile mastoids and I can understand the probable chronicity in such cases but it seems to me the transition of the acute into the chronic can be forestalled, in most cases, by a simple mastoid even in the absence of the classical indications for the operation, provided one has the cooperation of his patient and does not dismiss him until he is cured whether by conservative treatment or by a simple mastoid.

As to the pneumatic type becoming chronic, this is just the type where one would expect the classical signs indicating a simple mastoid, such as tenderness, copious and continued discharge, swelling of the posterior, superior canal well in spite of persistent, well directed conservative treatment. But I can understand how any ear can become chronic in the absence of the cooperation of the patient, and also where the attending aurist does not carry out his treatment conscientiously.

The word cholesteatoma as applied to the ear means chronicity. McKenzie defines it as a "foul smelling, cheesy substance which collects in the attic or in the antrum, or more rarely in the mastoid cells and is often found in neglected ears, filling the deeper parts of the meatus. Its established presence in a chronic purulent otitis media, almost invariably calls for a radical mastoid operation."

I feel that any discussion of this subject, to be of interest to you would fall short, should not we mention the danger signals of these chronic purulent otitis medias.

As otologists we feel safe in carrying our patients along conservatively after we have made the analysis of the condition, including functional test, determining the condition of the labyrinth, and by elimination placing our patient in the conservative class. You are the ones who are in a position to recognize the danger signals in all chronic purulent otitis media, as some of these patients seem little concerned as long as their ear condition is confined to a discharge and that offensive. They never consult the otologist, and only call you in an emergency. Headache especially made worse by lowering the head, vertigo-pain, etc., are symptoms that should direct you to call for consultation.

While there is a brighter outlook in the handling of intra-cranial complications of otic origin, brain abscess, still remains a tragedy and its handling, one of the most discouraging in surgery. Sinus thrombosis, labyrinthitis, meningitis, may arise as complications and they may be so closely associated that it will require all of the skill of the otologist, using the laboratory and all scientific means at his disposal for a differential diagnosis. Even then one can not be sure until he has explored and found definite evidence to back him in his opinion.

Fortunately, sinus thrombosis may be easily diagnosed and its handling is comparatively simple. Ligation of the jugular and clearing up the mastoid usually clears up this complication. Labyrinthitis brings us a different problem. We must determine if it is purulent or serous. I speak of serous and purulent labyrinthitis, only two out of the usual four classifications, because these are the two we wish to differentiate. If we are dealing with the serous condition conservatism is in order. whereas, in the purulent type there is a possibility of saving a life by opening the labyrinth. The serous type is cured by proper attention to the middle ear disease.

Differentiation between the serous and the purulent is difficult and our only recourse is to keep our patients quietly in bed awaiting developments, in the meantime utilizing all means to aid us in diagnosis. If the



labyrinthitis complicates a chronic purulent ear, just as soon as the acute symptoms subside, and we determine that we are dealing with a serous type, then it is usually in order to do a radical mastoid.

#### DISCUSSION

**R. H. Cowley, Berea:** This being a meeting of general practitioners, I have thought it would be well to limit my remarks to the prophylaxis. The discussion of this subject naturally falls into two parts, prophylaxis and treatment. These two parts almost as distinct from each other as though they belonged to two different diseases. The treatment part most frequently falls to the lot of the head specialist, while the prophylaxis quite as frequently is in the hands of the general practitioner.

I think it can be safely said that most of the chronic discharging ears could have been cured if they had been treated intelligently and persistently from the very first, and at the very first these cases are usually in the hands of the family doctor. I do not mean to blame the family doctor for all the bad results that we so often see. Too often he does not see them until the ear has been running for days or perhaps weeks. There is too often a fatalistic belief on the part of the parents that the ear will clear up of itself in due time and that the doctor can help little, if any, in hastening the process of repair. Part, at least, of this belief is a reflection of the attitude of the doctor who, when he is called, does not realize how much it is possible for him to do in helping nature to clear up the process.

To handle these cases successfully we must have in mind a clear conception of the physical and anatomical difficulties which face us when we are called to treat a running ear. We must understand first of all that every middle ear suppuration is already a beginning mastoiditis. The middle ear and the mastoid antrum are practically one cavity and no middle ear can contain pus without a coincident inflammation of the mastoid. Second, we must try to visualize what sort of a structure the mastoid is. The mastoid is a cross between a paranasal sinus and the medulla of a long bone. When inflamed, it simulates both sinusitis and osteomyelitis. Sinusitis recovers spontaneously if the natural drainage is adequate. Osteomyelitis always requires surgical interference to secure drainage.

One has only to glance at a prepared specimen of the temporal bone to appreciate the fact that it is exceedingly difficult to get adequate drainage from the antrum and middle ear through a perforated ear drum, whether the perforation occurs spontaneously or is produced by paracentesis. Especially is this true when the pus is very thick and tenacious. It should by this time be an axiom of medical practice that an ear drum should always be incised if the treatment

does not promptly relieve the symptoms and bring the ear back to normal hearing. I say normal hearing, because all the symptoms may disappear and if the hearing still remains subnormal, there is trouble left. Normal hearing must be regained, and that promptly.

Every family doctor must know how to do a paracentesis and carry with him the equipment for this important procedure. After drainage is established, the ear must be carefully watched and unless it clears up promptly and progressively, a specialist should be called. Tonsils and adenoids must be inspected, and unless they can prove a good alibi they should be removed.

The next question that arises is how long shall we wait in the presence of a running ear before we advise a mastoid operation. The dangers arising from pus retained in the mastoid process are real and immediate. I should say that in about one out of ten or fifteen cases we find at operation that there is no bony partition left between the mastoid and the meninges. In these cases the pus lies in direct contact with the wall of the sigmoid sinus. It is easy to imagine what dire results could and do follow in such cases if the pus is not given an outlet by operation. Some of the worst cases are accompanied by very mild symptoms until the disaster has happened. That is especially true in the mucosa capsulitis cases where the symptoms are acute and then die down and the process goes on like a dissolving of the mastoid bone—no symptoms at all, it just dissolves away.

No one can set the exact time at which an operation should be done, but of one thing I am sure. A simple mastoid operation is a conservative and not a radical measure in that it saves the patient from imminent danger and prevents the progressive loss of hearing which always accompanies a chronic running ear. In cases where the operation is done early, the hearing is usually nearly 100 per cent.

I feel that I am not overstating the case when I say that the few cases of middle ear suppuration which cannot be cured by prompt and efficient treatment from the very first can be cured if a mastoid operation is done early enough. Those of us who have labored week after week and month after month to control a chronic suppurating ear know what a disaster it is for a parent or doctor to let an acute case drift into a chronic condition, hoping against hope that nature will do the trick.

The mastoid operation occupies the same place in our thinking now that the appendicitis operation occupied twenty-five years ago. I hope to live to see the day when this will be changed and we will think of it as a conservative measure.

In closing I want to emphasize the importance of milk injections in the treatment of the acute ear cases. I have found them more effective

in bringing about resolution than any other measure.

**W. P. Drake, Bowling Green:** I did not have the pleasure of reading Dr. Reynolds' paper, although I listened to it with a great deal of interest and found it greatly worth while. It is not necessary for me to go into all the causes of this condition, as they have been enumerated.

I want to say that we have one thing we have been checking and double checking on, and that is the constant involvement of the maxillary sinus in acute otitis media. Investigators have found that when we have a right acute otitis media, we have a right maxillary sinus involvement, and where we have a left acute otitis media, we have a left maxillary sinus involvement. Such may not run true to form, but the point I wish to make is, that we should always look for a maxillary sinus involvement in these conditions. These findings have been so constant in my own work that I regard them as rather conclusive. Direct your treatment to the cause, the maxillary condition, and it will assist you greatly in clearing up these middle ear infections.

These people with chronic ears should stay out of swimming pools, as you well know.

The pathology of this condition naturally follows itself into the treatment of the condition. A great many of these conditions have only a swelling or an infiltration. They can be cleared up, as Dr. Reynolds says, by touching up the granulations, and all that sort of thing, removal of the cause, tonsils and adenoids, and any other obstruction. If they do not clear up with this kind of treatment, something else should be done.

We should remember that a chronic ear is only a continuation of an acute condition. Personally I believe if we would do a simple mastoid within the first six months, say, before a necrosis involvement, we would no doubt clear up a great many of these conditions, and we would not have very many chronic discharging ears.

Just when they should be surgical after they have gone on and on, is a question for the doctor to decide, and sometimes the patient.

We know that a cholesteatoma is a surgical condition. No treatment directed to that will do any good other than surgery. The more you play with a cholesteatoma, I think, the more damage you do your patient. If you put water on it, it swells up, it makes pressure on the facial nerve and probably facial paralysis. I advise you to leave it alone.

I feel these conditions, of course, are in the hands of the ear man. I do want to say, however, which has not been emphasized, that these patients with chronic running ears are generally sick patients, and they don't all belong to the otologist. They come to you with a lot of

reflex symptoms; they are anemic and they need treatment, and it is just as important for the general practitioner to have something to do with them in getting them well as the ear man. The patient needs building up. He needs a correct diet and correct medicine, even thyroid sometimes; sometimes it is an endocrine condition. In other words, the patient should have the proper medical treatment.

I think I dwelt on the fact that you should take care of these patients early. We can't get the cooperation of our patients as we should in these conditions. It is very difficult indeed. If a patient comes to your office and has treatment for a week or ten days and doesn't get well, he generally goes away feeling he is not being benefited and falls into the hands of some other doctor, maybe no doctor at all, and therefore these cases drag on until they are dangerous to life.

I remember a few years ago a young man I knew was having chills and fever. I was rather interested in the young man, in a way, so I saw the doctor who was treating him and asked him how the boy was getting along. He said he was having chills, sometimes two, three or four a day.

I said, "When did he have the last one?"

"A week ago."

"If he has any more bring him in. He may have a discharging ear."

He hadn't been gone an hour until he called me and told me the boy had another chill. He brought him in, and we found a blood stream infection. Here was a young fellow with cholesteatoma. Probably without surgical intervention he would have had a long drawn out illness, or probably would have died. I say these cases with chronic ears should not be left alone. They need the proper treatment, not only from the otologist, but from the general practitioner.

**A. L. Bass, Louisville:** I am sure we all appreciated and enjoyed Dr. Reynolds' paper, and I am glad he brought out the prevention part of it, which is very valuable. One thing I want to mention is something I was taught in school, which is still used quite a bit: the use in pain in an acute ear of five percent phenol and glycerin. When these children have acute middle ears, the proper thing to do for them is to do a myringotomy. The five per cent phenol and glycerin destroys the epithelium, masks the symptoms, and discolors the drum. If you have got a red, bulging drum, it gives it a normal appearance and you don't know whether it is bulging much or not. It delays healing in case you have to incise it. A proper myringotomy is much better.

As a rule, these perforations come along in here, and you have got this pus back behind the drum. Common sense will tell you that is not going to get out of there unless you help it. A good myringotomy up that way, (illustration on



black board), down along the margin, not too close, will help these conditions. Don't use the phenol. I had one patient that a doctor was called in at night to relieve. He put in phenol. There was quite a bit of edema, and it took about a week to get it to where I could see the drum.

**Para-nasal Sinus complications.** It is estimated by one man that in these ears that keep up a discharge there is about eighty-five per cent complication of the sinus with chronic discharge of the middle ear. I think that is high, but it gives us a thought, and it behooves us to look to the sinus when the ear continues to discharge.

A margin of perforation with a thin secretion is also indicative of cholesteatoma and nearly always demands radical operation. The same with a polypoid condition.

**X-ray** is much more valuable in acute mastoid infections than in chronic, and we can tell whether a mastoid is going to need to be drained or given a chance to heal with simple treatment by the X-ray pictures.

**Complications.** It is estimated that intracranial complications are about one in 500 chronic middle ear conditions. A simple treatment where there isn't much discharge is to irrigate with 1:5000 bichloride, and use the boric acid alcohol drops. If there is not much discharge, wipe out the canal clean with a little alcohol, wrap a little cotton around a toothpick, press it gently, and do that same thing with the cotton and toothpick once or twice a day, putting it in the ear and holding it about five minutes.

I am very glad Dr. Drake brought up the swimming pool in reference to these discharging ears. If you get them quiet once and they go in a swimming pool, it is one of the worst things they can do.

**J. H. Hester, Louisville:** Mr. President and Gentlemen: I want to emphasize a few of the points brought out by Dr. Reynolds. The first thing I wish to emphasize is prevention. Prevention, I think, is the most important thing in any disease that can be prevented, and this is one that I feel there can be quite a bit done for.

The first thing is to remove the things that produce or cause otitis media, acute to begin with. We all admit that tonsils, adenoids and nasal conditions, such as a sinus infection, and so on, are the principal causes of all acute otitis medias.

I wish to state before this Society that in my honest opinion every child before it enters school should have its tonsils and adenoids removed, with no exceptions. That is my own opinion. It will prevent many, many diseases such as the ones discussed here this morning, rheumatic conditions in childhood, and many others. Sooner or later in life, we all know our tonsils must practically all come out, and it is much easier

and safer to take them out while we are children than it is after we come to adult life.

There is always more or less danger of hemorrhage in adults. We have had quite a few instances of this kind in our city in the last six or eight months. I have had some and many others have had the same. You take out a child's tonsils in the morning, and that afternoon it will be sitting up eating and playing. In three or four days it is well, with no danger, no hemorrhage. The child always does well, and there is less danger of picking up infections that are being broadcast through the country.

One other thing I would like to speak of is in regard to the treatment at home by the family doctor. I believe that the family doctor can do a great deal in these cases toward preventing acute otitis media by keeping the nose well open, sprayed out, using neosilvol or argyrol or some antiseptic solution. That will help a great deal to take care of the throat condition.

One other condition I would like to mention is zinc ionization in these chronic otitis media cases, together with these other necessary treatments. Where you have removed all the causes, such as tonsils, adenoids and nasal obstructions, and everything has failed, you have treated the ear and it has failed, then use pure alcohol, as Dr. Reynolds explained, clean the ear thoroughly, and then zinc ionize the ear for fifteen to twenty minutes, depending on how high you can get the voltage. Some people can stand it at three milliamperes; others can stand it at five. If you can reach three milliamperes, give them about twenty minutes, and you will find that will clear up cases that nothing else will. I have had a number of patients with chronic running ear for fifteen to thirty years clear up under two or three treatments. We tried all other remedies and they failed.

**Henry G. Reynolds, Paducah, (In closing):** I think a great many of the chronic ears that we have are due to atypical involvements of the mastoid; the so-called silent mastoid is a thing that frequently is difficult to get the man in general practice to realize is a real danger, because it is not accompanied by the usual symptoms. The attending physician honestly fails to cooperate and the ear drifts into a chronicity with a resulting deafness, or forces us sooner or later, into a mastoid operation, or may result in an intracranial complication.

The hemorrhagic mastoid is another kind that requires early attention. Because of the type of infection it is one of the most dangerous.

It is these atypical involvements that one should bear in mind in advising patients as to whether or not to have an operation when so advised by the specialist. For these reasons, I think that the men who come in contact with these ears first, should realize that they have such dangers lurking in every acute ear, and for

such reasons, early consultation is always advisable.

I want to thank these gentlemen for discussing the paper.

## CHRONIC SUPPURATIVE OTITIS MEDIA WITH COMPLICATIONS\*

WILL R. PRYOR, M. D.

Louisville.

I am presenting the case of a boy 18 years of age seen by me on June 26th, 1929. He had had a discharging right ear for eight years. He had been swimming one week previously, and following this there was an increased foul discharge from the ear, also headache so severe in type as to require an opiate. Further questioning revealed that the boy had been subject to attacks of dizziness, once lasting as long as ten days.

Examination showed a complete facial paralysis on the right. There was drooping of the posterior superior canal wall. The canal was filled with foul acrid pus. When this was removed the middle ear was found to be full of granulations. There was no posterior tenderness. Hearing was almost absent. The caloric test also was negative. There was no spontaneous nystagmus. This justified a diagnosis of a dead labyrinth. The temperature was 101° F. and pulse 66 to 72. There were nine cells per cubic millimeter of spinal fluid. Dr. Gaylord C. Hall saw the patient and it was agreed that immediate operative procedure should be instituted.

At operation the mastoid antrum and middle ear were found to contain cholesteatoma and granulations. The horizontal semicircular canal was eroded and the facial nerve exposed at the knee for an eighth of an inch by the cholesteatoma. A radical operation was performed, and also the Hinsberg labyrinth operation. This consists of removal of the top of the horizontal canal and the promontory, thereby draining the labyrinth. Nature had already performed the first step of this operation.

Outside of one rise in temperature which was relieved by a change of dressing, the patient made an uneventful recovery. In a few weeks improvement in the facial nerve was evident.

Examination made some months ago showed a complete restoration of function of the nerve.

Facial paralysis occurring in the course of a chronic ear suppuration is an indication for immediate radical operation. The nerve is usually involved in its descending portion in the facial ridge.

Facial paralysis may complicate an acute suppurative otitis. It is thought to be due to pressure on the nerve as it comes out of the internal auditory canal, pressure being caused by edema of the middle ear mucosa. Adequate drainage by a simple paracentesis usually relieves the paralysis.

Occasionally following a simple mastoid operation there will be a facial paralysis coming on in a week or ten days. The wound should always be reopened and possible exposure of the nerve or pressure on it by bone fragments should be looked for. One beautiful little three-year-old girl whom I saw in the University Clinic in Vienna, a private patient of Professor Newmann, developed a paralysis one week following operation. Subsequent exploration revealed nothing and the condition appeared to be permanent.

We differentiate four different kinds of labyrinthitis: circumscribed labyrinthitis, acute serous labyrinthitis, acute purulent labyrinthitis, and purulent latent labyrinthitis. In a circumscribed labyrinthitis we have a positive fistula symptom, positive caloric, hearing is present, and there may or may not be a spontaneous nystagmus.

With acute serous labyrinthitis there may or may not be a positive fistula symptom, the caloric is usually positive, hearing is generally present, and there is a spontaneous nystagmus, more often to the affected side, though it may be to the opposite side. The patient is dizzy, frequently nauseated, and refuses absolute bed rest. This may subside leaving the labyrinth intact or may pass into an acute purulent labyrinthitis.

An acute purulent labyrinthitis has a negative fistula symptom, negative caloric, no hearing in the ear, and the nystagmus is to the opposite side.

Purulent latent labyrinthitis shows no fistula symptom, a negative caloric, no hearing, and no nystagmus.

I believe that the patient whose case is reported had this last type of labyrinthitis. During the last protracted dizzy spell the labyrinth passed from an acute serous labyrinthitis to an acute purulent and subsided into the purulent latent stage.

In a case of circumscribed labyrinthitis a radical mastoid operation is indicated.

After the acute symptoms of serous labyrinthitis subside, we do a radical operation.

With both the acute purulent and purulent latent labyrinthitis, a labyrinth operation is done.

## DISCUSSION

Gaylord C. Hall: There are two or three things I want to mention in regard to the case reported. I have seen the patient at irregular intervals for several years. He was intractable,

\*Read before the Jefferson County Medical Society,



he would come to the office for observation for a few weeks, then disappear for months. Operation was repeatedly urged, but neither the boy nor the parents would consent to anything until he was confronted with an actual intracranial complication.

Not all of these chronic discharging ears demand radical operation, as some are due to discharge coming from the naso-pharynx through an open Eustachian tube and destroyed ear drum. It is the cases that show actual bone necrosis that cause trouble and require radical operation.

As Dr. Pryor has stated, this boy had a discharging ear for many years, and no permanent relief could be obtained in such a case without radical operation. The labyrinth is drained in all suppurative cases, because if we do not provide for drainage outside we are apt to have a "flare-up" with infection traveling inward, the patient succumbing a few days after a simple radical operation from suppurative meningitis.

#### MALARIAL THERAPY IN PARESIS\*

H. B. SCOTT, M. D.

Louisville.

Paresis is an organic disease of the brain of an inflammatory and degenerative nature, manifesting itself by certain physical symptoms and progressive mental deterioration, and producing various mental symptoms. It is essentially a cortical disease, but its symptomatology is frequently modified by spinal complications. The psychic symptoms in addition to the characteristic progressive dementia, present many phases: neurasthenic, hysterical, hypochondrical, melancholic, maniacal, circular and paranoid.

The disease is best studied perhaps in three stages: the prodromal or incipient, the established mental disorder (which may be exalted depressed or hallucinatory), and the terminal period of dementia. I shall base my paper more particularly on the prodromal or pre-paretic period, because of the great importance to both the patient and the family as well as the public in general, in being able to detect the disease in its very incipency, thus being able to avoid many unpleasant and disastrous happenings that often occur during this stage of the disease.

Paresis is one of the most insidious forms of insanity as regards its gradual, and almost unnoticeable onset. Very often this early stage presents symptoms which lead to its being mistaken for neurasthenia. The earliest symptoms may be neurasthenic in character or even a combination hysteria with neurasthenia.

Insomnia, tremor, irritability of temper, hypochondrical depression, dull headache, ophthalmic migraine, pains in various parts of the body, general malaise, loss of appetite and digestive disorders; these are manifestations which may readily be misinterpreted as purely of functional nature. It is only where other symptoms in addition to these, are presented that a suspicion of a more serious disease may be entertained or the diagnosis actually established.

There are so many manifestations in the prodromal period that it is not strange that it should often go unrecognized during its early stage, however, there is no disease in which a failure to make an early correct diagnosis results so disastrously. It is during this early period that those unfortunate occurrences are so frequent which might have been prevented if the true condition had been recognized, and proper treatment begun.

Paresis is manifested in its incipency by symptoms of defective judgment and intelligence, memory defects, and moral obtuseness.

We frequently see the most pitiful pictures, a previously respected citizen, father of a family, occupying a good social position, change and become, at the height of his success, a failure and debauch, while his friends see nothing decidedly wrong mentally, although they take notice of this decided change. If we can get at and recognize the early symptoms in these cases, many tragedies would be prevented daily. A change in general conduct, lasting weeks or months, is usually followed by an acute maniacal excitement—the delirium of an acute toxic psychosis—and even the slowly developing depression of the melancholia or the gradual change of character of the paranoid, is usually not appreciated before any serious harm is done. The diagnosis of paresis does not rest solely upon the mental symptoms. Paresis is a gross organic syphilitic disease of the brain and its diagnosis must rest largely upon an appreciation of the physical signs which these changes bring about, particularly in the field of motor disturbance. Delusions of grandeur and great wealth, power and strength are in no wise a necessary part of the symptom complex and while the so-called classified type of paresis does present such delusions, still delusions have been advanced for believing that this type is becoming relatively less frequent. The most important physical symptoms of the prodromal period are the oculo-motor and the tendon reflex disturbances. In the oculo-motor phenomena the pupillary abnormalities are most important. The loss of the light reflex with retention of the reaction to accommodation—the Argyll-Robinson pupil, is

\*Read before the Kentucky State Medical Association, September 16, 1930, Bowling Green.

one of the most valuable diagnostic signs of beginning Paresis, in the absence of Tabes, as it frequently occurs very early. This symptom is present in about forty-five per cent of all cases. A sluggish reaction to light, probably the beginning stage of the Argyll-Robinson pupil, is found in about twenty-eight per cent, while a normal light reflex is present in about twenty-six per cent. It is generally conceded, however, that Argyll-Robinson pupil is much more common in the tabetic type of Paresis, which is about eighty-four per cent.

In examining for these conditions, care should be taken that movements of accommodation are not mistaken for reaction to light by having the patient fix the gaze upon some object, the pupil should be equally illuminated and the light should not be too bright, as under these circumstances, a sluggish reaction might be masked. Earlier still than loss of the direct light reflex, can often be found loss of consensual light reflex. This consists in the dilatation and contraction of the pupil of one eye when the other is shaded or exposed to direct light. It is quite possible that the loss of the reflex is an early stage in the development of the Argyll-Robinson pupil and should always be tested for. This condition is usually found when a sluggish light reflex is present. Of the tendon reflexes, the most important is the knee-jerk. This may be normal, exaggerated, diminished or lost on one or both sides.

The exaggerated reflex is most common but the absence of the knee-jerk is of much greater diagnostic importance, as there are many more causes for its absence. This sign also, of course, depends for its importance upon the elimination of other possible etiological factors, especially Tabes. The mental symptoms of the prodromal stage are often not appreciated. In the beginning, the patient like any neurasthenic, has a distinct consciousness of his own illness and observes his symptoms. Besides what I have mentioned there are several other physical signs and symptoms which are helpful in making an early diagnosis—defective innervation of one side of the face causing a slight paralysis; transitory ocular palsies; diminished sensibility to pain, a dark, pale, greasy complexion; lack of facial expression; jerky tremor of the facio-lingual muscles at the beginning of voluntary movement; slight difficulties of articulation; rushing of blood to head; loss of memory of localization of tactile sensations; loss of cremasteric reflex; attacks of syncope or of mild or severe epileptiform convulsions, gastric and vesical crises. Whenever a patient presents several of the physical signs that I have mentioned, a positive Wassermann

will make a diagnosis of Paresis almost conclusive, beyond a doubt. And even in the absence of a positive Wassermann of the blood and spinal fluid, a patient presenting these symptoms together with a clinical history of syphilis should be carefully watched and treated until some definite conclusion has been reached. The serological tests for syphilis have, as a rule, great corroborative significance. A Wassermann test of the blood and of the spinal fluid is usually positive and the cells in the spinal fluid, which normally number three and not above ten, may be from ten upward to many hundreds. A moderate increase to around fifty is rather in favor of the metasyphilitic disorder, while a count of hundreds of cells is more common in cerebro-spinal syphilis, from which we have to make a differential diagnosis in Paresis. The paretic gold curve is also one of our best diagnostic aids, and serves with other symptoms and tests in making our diagnosis.

In the year of 1887, Wagner Von Jauregg found that paretics had a tendency to temporarily improve following intercurrent infectious diseases and suppurative processes. This discovery suggested the advisability of deliberately attacking the problem with a controllable fever-producing element. In the earlier attempts tuberculin and mercury were used with encouraging results; later typhoid vaccine was tried and found to yield somewhat better and more lasting results than tuberculin; but all this inspired the hope that an acute infectious fever might prove more effective, so the tertian type of malaria since it can be definitely controlled, was selected for the purpose.

In 1917 Von Jauregg treated nine patients having paresis by this method, six of the nine were benefitted, and in 1922, four years after treatment, three of these were actively and efficiently at work. This result stimulated him to use the method continuously and it was subsequently reported that over two hundred patients had been treated with the result that more than fifty were in complete remissions, which included cases not only of beginning dementia but also states of severe maniacal excitement with delusions of grandeur and delirious reactions. Other Europeans investigators were not slow to follow his lead, so at present there are some forty dealing with different aspects of the question. Among the early favorable reports were those of Delgado of Peru, of Nonne of Hamburg, Pilez and Gerstmann of Vienna.

Von Jauregg made other announcements in 1918, 1921 and 1922. His technique consisted in inoculating the patient intramuscularly with 2 c. c's. of blood from an acutely malarial-benign tertian-type-nonsyphilitic indi-



vidual. Chills and fever occurred after eight to ten days incubation and were generally permitted to continue from twelve to sixteen paroxysms, which were then interrupted by active quinine therapy. In 1923, Kirschbaum reported a series of 196 cases of general paralysis treated with the malarial inoculation; of these, 123 patients, or 63%, had remissions of varying degrees; 61 (31%) were classed as having complete remissions; 42 (21%) as having fairly complete remissions; and 20 (11%) as having slight remissions; 45 were unimproved; 28 died and 10 relapsed after having a good remission. The treatment of general paralysis by means of malarial inoculation is based on no known principle and is of a purely empiric nature; the mode of action of intercurrent suppurative or febrile conditions in bringing about a degree of clinical improvement in a certain number of cases, not only of general paresis but also of post encephalitic conditions, and occasionally of other disorders of the central nervous system, is quite unknown. It has been suggested that the phenomenon is due to an influence of biologic order; that malaria, for example, calls forth the production of anti-bodies, or other substances, which act with some effectiveness against the original spirochete; but the purely speculative character of this suggestion is obvious. Some think that the high degree of fever produced, especially by the malaria, is a factor, if not solely responsible for the favorable effect exerted by the intercurrent infection.

Against this supposition lies the fact, at least in the case of general paresis, that the thermal death of the spirochete is 56 centigrade continued for ten minutes, although it is stated that the organism fails to grow at temperatures in excess of from 40 to 41 centigrade. (104 to 105 Fahrenheit) On the other hand, it is possible that the experiments of Weichbrodt and Jahnelt have some bearing on the matter, for these investigators found that the complete disappearance and death of spirochetes present in serotol chancres in rabbits, could be brought about by the exposure of animals so infected, provided such exposures were repeated not less than three times. It likewise appears somewhat suggestive that Von Jauregg obtained what would seem to have been progressively better results in the treatment of paresis as he employed increasingly effective febrifacients.

There are several theories which attempt to explain the manner in which the malaria exerts its influence upon the spirochete. We know that there is no specific reaction, otherwise, several other infectious diseases and fevers would not produce similar results. Good remissions have occurred in cases having only

a slight rise in temperature, therefore, the fever alone is not responsible for results. Mueller believes that changes in the vascular tonus occur in various parts of the body following injections, that parasympathetic reactions such as vaso-dilatation occur, thus leading to local hyperemia and transudation, which reactions are accompanied by invasions of polymorphonuclear leucocytes and escape of serum. Thus, the general leucocyte count of the circulation is lowered and the blood pressure falls. This general leukopenia in the peripheral stream indicates a shunting of current and cells into the abdominal vessels which are dilated by parasympathetic impulses, which the abdominal vasodilation is easily and quickly neutralized by the unpaired vasoconstrictors; the same dilatation in the local inflammatory areas in the brain is of longer standing and leads to the above described reactions. This suggests an effect on the vegetative vasomotor system independent of temperature rises, yet dependent upon malaria. Some believe that we should take advantage of this increased transudate process by following with the usual specific therapy in order that a more intimate contact with spirochetes may be had.

Many writers have remarked on the atypical and irregular course often noted in inoculation malaria. Our experience has been the same, in fact most all of our cases have presented irregular courses of fever. The attacks of chills and fever rarely take place only every other day, far more frequently they are from the first, or soon become, diurnal in occurrence, sometimes three or four days between febrile attacks. Some cases were mostly subnormal and then the infection apparently subsided without quinine therapy. Some writers report serious complications, but are considered rare by most all the writers, and so far, we have experienced one. One patient had convulsions and died but this patient had been having them previously so they were of no significance. The serological findings do not at all agree with the clinical results. A patient who has experienced a complete remission will show a positive blood, partially modified and also a somewhat modified improved spinal fluid, although some cases have been reported which show a certain degree of correlation between the clinical and serological improvement. This is the reason that it is necessary to follow the quinine therapy with courses of salvarsan and mercury, and in course of time the blood and spinal fluid become negative. There is no question but that the results obtained depend upon the stage of the disease, and the earlier, the more certain the remission. In these early cases, successful results can be predicted with a great degree

of certainty. Gerstmann believes that the types giving the best results, are simple dementia and taboparesis. Pilcz adds cases of maniacal excitement to this group. The development of acute mental symptoms during the febrile stage is regarded as favorable, though they occasionally persist after the cessation of fever. This is true especially of auditory hallucinations which may continue in spite of an otherwise complete remission. Many patients are soon restored so they are able to work at something and have a complete insight in to their condition and also have a very good judgment. Pupils usually improve but rarely show a complete restoration of the reflex to light; speech disturbances and writing improve. Pyramidal tract disorders greatly improve. One writer reports that 20 patients were given the inoculation the second time, seventeen months after the first had failed. Mosquito infection was found more effective in producing the second attack, as it is generally conceded very difficult to inoculate the second time; eight months show; one patient dead, seven unimproved, seven slightly improved, two have a marked progress, three have been discharged. In view of the fact that these patients show little or no improvement after the first inoculation and twelve of the twenty showed improvement on reinoculation, it seems worth while to renew malarial treatment in suitable cases of paresis. Taking everything into consideration, one must admit that results thus far obtained are decidedly better and greater than any other treatment of paresis. Sufficient time has not elapsed to fully determine the degree of permanency or exact nature of the remission, but results so far obtained have been somewhat uniform and suggest that there is enough constancy in the remission and results to follow this treatment persistently and conscientiously. The advocates of the specific and non-specific treatment of neuro-syphilis are not opposed. The arsphenamines, bismuth, tryparsamide, malaria and typhoid vaccine, each has a place and a definite field in which it produces the maximum good. Years of experience in a large number of these cases have demonstrated the value of these various remedies and it is now for the syphilologist to determine the cases in which these special remedies are best suited. However in some cases in which the specific therapy following the fever-course was refused, the clinical and serological results were excellent. The mortality in cases treated by malaria as reported by various observers, has not offered a weighty weapon for opponents of this form of treatment. Of the first one hundred cases treated by this method, nine are dead, a rate which compare favorably with that in any

group of untreated cases of parenchymatous neuro-syphilis observed for three years. Analysis of the causes of death shows that in two cases it was probably due to the malaria. In three others, the malaria undoubtedly acted as the predisposing factor, as the direct causes were broncho-pneumonia, diphtheria and erysipelas. These infections were acquired after the fever was stopped or during the last few days of the fever-course when the patients were debilitated and exhausted. In two cases, death was caused by general paralytic convulsions many months after the fever-course; in these it seems, that the malaria had no influence. So there have been only five cases in which death was influenced by the malaria, a surprisingly low figure, if the severity of the fever-course and the debility of the patient are considered in cases that are not selected especially for inoculation. There has been no change from the original technique. The inoculation may be given either intramuscularly or intravenously. The chills occur after eight or ten days of incubation but usually somewhat sooner if given intravenously and from twelve to fifteen paroxysms are permitted which are then interrupted by active quinine therapy. It is well to state here that inoculation-malaria is not transmissible by mosquitoes. Inoculated malarial patients were exposed to anopheles bites and attempts were made to transfer the disease to others in this manner but results were negative, although the susceptibility of these subjects was demonstrated through subsequent injection of malarial blood. From such experiments several writers have concluded that the malarial treatment of paresis entails no danger of spreading the malaria by this means. It was also demonstrated in twenty cases that the malarial plasmodium becomes more virulent as it is incubated and transferred to the next patient. In this instance twenty inoculation injections were made and the intensity of the fever gradually ascended as the progression increased. Dr. O'Leary of the Mayo Clinic has shown that in the first two years following the treatment by malaria, hardly any change was noted in the serological study of the spinal fluid or blood; at the end of the fourth year however, nineteen of the twenty-three patients with paresis, who are still in remission, have shown a complete negative of the reactions on the blood and spinal fluid. He further states that too much significance should not be attached to this observation and that the fact must be borne in mind that serologic reversals in cases of paresis warrant long observation, and until the opportunity for extensive microscopic study of the brains of patients treated by malaria, permits a comparison of the pathologic and serologic data, conclusive deductions are not warranted.



## CONCLUSIONS

A larger percentage of uniform and constant results have been obtained by the malaria inoculation than any other treatment for paresis. The danger and death rate are very low when we consider that we are dealing with a condition that has meant certain death until the advent of malaria inoculation. These cases must be selected and inoculated as early as is possible, for every one knows that there is no such thing as brain-cell regeneration, once the degeneration has occurred.

## BIBLIOGRAPHY

- Wagner, Von Jauregg. The Treatment of General Paresis by Inoculation of Malaria. Jour. Nerv., and Ment. Diseases.  
 Nonne, M. Treatment of General Paresis and Its Relation to Malaria. Jour. Nervous and Mental Diseases.  
 Perves, Stewart J. The Treatment of General Paresis. British Med. Jour. Mch., 1924.  
 H. A. Bunker, Jr. and Geo. H. Kirby. Treatment of General Paresis by Inoculation with Malaria. Journal A. M. A., Feb., 1925.

## DISCUSSION

**Curran Pope, Louisville:** Let us understand that we are not dealing with the malarial treatment of paresis. We are dealing with the treatment of certain spirochetal diseases of the nervous system by therapeutic fever, that it is not the malaria organism that does the work, but the fever. Therefore, any agent that produces fever will produce results probably equal to malaria.

For twelve years I have been using electrothermic heating of the nervous system in the treatment of tabes, cerebro-spinal syphilis, and other diseases. I reported this to the West Virginia State Medical Association in 1928.

Solomon says that the lowest number of deaths that you can expect in the malarial treatment is approximately 10 per cent. We have about 10 per cent of deaths during the infective period of treatment, often rising to 18 per cent later on.

Thirty-nine or forty years ago I saw two cases cured by erysipelas. Erysipelas or malaria may be a difficult disease to control and may damage vital organs.

It is often times difficult to obtain the exact strain of malarial micro-organism.

Some white and many colored persons are immune to the malarial organism.

Many cases of malarial fever stop spontaneously before the desired reaction is produced, and others have only slight fever.

You cannot control the intensity or severity of erysipelas or malaria without stopping it altogether.

Anti-luetic treatment, that is anti-luetic treatment, during the treatment by malaria.

Electrothermic fever promises most for these difficult cases. What does the electrothermic treatment offer?

1. It is scientific, imitating nature's processes, of recovery by elevating the temperature and inhibiting or destroying the bacterial infection.

2. It is always accessible.

3. It is accurate, controllable as to frequency, duration and intensity.

4. So far in every case elevation of temperature has been produced under complete control.

5. Individual reactions can be met by varying the intensity and the duration of the treatment.

6. Cases occur that are immune to malaria, but are not immune to electrotherapeutic fever.

7. We deal with no dangerous pathogenic organism.

8. Anti-luetic therapy or any other therapy may go hand in hand.

9. Treatment may be standardized to any particular patient.

10. A smooth current in perfect resonance is preferable.

11. To keep the patient quiet amytal or HMC is a valuable addition.

12. It is a strictly hospital treatment.

13. It is applicable to tabes, paralysis agitans, encephalitis shortly after the attack, disseminated sclerosis, and cerebrospinal syphilis.

14. Outside of these diseases it has a wide field of possibilities.

15. If it is desired at any time to lower the temperature produced, cold drinks and cool (not cold but cool), sponging will stop the rise in temperature.

16. A thermic rise may be produced by hot baths.

17. A nurse must be in constant attendance to record pulse, temperature, respiration, every fifteen minutes, give water, watch the current, and make the patient comfortable.

18. A diathermy machine that is smooth, in perfect resonance, and acceptable to the patient, is essential.

## Prevention of Colds by Vaccine Therapy.—

Personal experience has convinced Murray that catarrhal vaccine as a preventive for head colds is uncertain as to results. The treatment might well be offered as a preventive treatment to persons unusually susceptible to head colds, after its limitations have been definitely explained. Any physician giving this vaccine treatment will be impressed with some of the results obtained and disappointed in other cases. In the group who have had the vaccine treatment for three successive years, the number of colds has been reduced from 245 to 95, a percentage gain of 61 per cent, and the average of four colds per person has been cut to 1½ colds per person. This reduction makes the treatment in industry economically sound. One would be safe in saying that the catarrhal vaccine as a preventive of colds seems to be helpful in 50 per cent of the persons taking it.

## NON-MALIGNANT TUMORS OF THE BREAST

J. D. NORTHCUTT, M. D.

Covington.

We shall not attempt to discuss etiology or pathology of tumors of the breast in this paper. Over a period of many years there has been little, if anything, learned about tumors of the breast, except perhaps we are gradually coming to the point of dealing with the so-called benign tumors of the breast more radically. The latest text books on pathology describe in length, and in a comprehensive and detailed manner, the anatomical and pathological structures of these tumors which are termed benign. The usual classification given are Adenoma, Fibroma, Lipoma, Smooth Wall Cyst, Sebaceous Cyst, Dermoid Cyst, Blue Dome Cyst, Lacteals and Hematocele.

Then the modern text books on surgery give the clinical symptoms of tumors of the breast that are supposed to be benign. Thus, if a tumor occurs in a woman under thirty-five, if it is completely incapsulated, if it is not attached to the skin, if there is no pain, if there is no retraction of the nipple, if there are no enlarged lymph nodes in the axilla, if it has not increased in size recently, and if the patient has lost no weight, then we are supposed to call this a benign tumor, while on the other hand, there are few surgeons who have had considerable experience over a number of years and who have neither had a sad experience nor know of a sad experience which occurred as a result of calling a malignant tumor a benign tumor, or allowing a benign tumor to remain in situ until it became malignant. Most of us have seen patients treated with salves and ointments, or other methods, until the once benign tumor became malignant.

Good authorities claim that aside from inflammatory tumors, eighty per cent of all tumors of the breast are primarily malignant, and that fifty per cent of the twenty per cent remaining become so. This leaves us only ten per cent as innocent, a dangerously small margin to select. It is splendid to be able to differentiate beyond all question a benign tumor of the breast, and advise a patient that it is harmless, but to be sure is extremely difficult with most men. One should be certain enough to wager his own life for he is gambling with the patient's life.

I will relate a few instances that have made a lasting impression on me.

(1) About seven years ago we removed a

small lump from a breast, feeling sure it was benign. A competent surgeon made the remark after it was removed, that it was benign, but better out. It was submitted to a pathologist and the report came back highly malignant. Not only was the characteristic arrangement of cells present, but the blood vessels were clogged with malignant cells.

(2) While visiting one of the largest clinics in the country, a surgeon made the remark after removing a tumor from a breast that he was sure the tumor was benign, and only submitted it for examination because of the routine of the institution to have every tumor examined. Within a few minutes the report came in—carcinoma.

(3) One of the greatest surgeons in our country gave his consent for a woman, who had a small lump in her breast, to take a trip abroad. When she returned within six months an X-ray of the chest revealed metastases to the lungs.

(4) Since attempting to write this paper a patient came in with a tumor of the breast. She was past forty-five years of age, the tumor had recently begun to enlarge, was slightly tender, and apparently fixed in position. In brief, it was very suspicious of malignancy. The tumor was removed under local anaesthesia. The pathologist asked to see the tumor before its removal and gave as his opinion that it was malignant. It was removed with surrounding breast tissue, and when handed to the pathologist for a frozen section, he again stated that it looked very much like a malignant tumor. When opened it proved to be a smooth wall, simple cyst, with great inside tension.

Hunt, of the Mayo clinic, in a recent report of an unusual case of multiple tumors of the breast, makes this statement: "It is better to remove all nodules of the breast for microscopic examination where there is a reasonable doubt." When men of great experience and renowned ability speak about leaving only the ones that are benign beyond a reasonable doubt, a great responsibility hangs upon the men of less ability and experience.

What good comes from having the patient return for observation? Some advise them to return every three months, others every six months. If a really benign tumor of the breast becomes malignant, it must begin some definite time, and no one has ever caught the tumor in the process of changing. It may be beginning right under your finger tips and under your watchful eye the day she leaves your office, and when she returns six months later, the condition may be far advanced. Therefore, we believe that it is better to exchange a really benign tumor of the breast for a scar rather than do any watchful wait-

\*Read before the Surgical Section of the Kentucky State Medical Association at Bowling Green, Sept. 15-18, 1930



ing.

I am well aware of the great skill and the diagnostic ability of some of the surgeons present, and in most incidents I would abide by their opinion in surgical conditions, but should any one of them diagnose a lump in the breast of a member of my family as being benign, I am afraid I would still be more or less uneasy. I believe it would be safer and that we would save more lives by dealing radically with benign tumors of the breast, for inasmuch as we know not the cause of cancer, nor how to cure it, it occurs to me that our greatest field of good is in being radical with conditions that may become malignant while they are yet benign, for instance: ulcer of the stomach, lacerated cervixes, and the so-called benign tumors of the breast. There are many ways in which to handle these tumors. A very good method is to remove the tumor, preferably under local anesthesia, with enough of the surrounding breast tissue to keep well away from the mass; do the work as neatly as possible, submit the tumor to a competent pathologist, and while he is making a frozen section, close the incision. If the report comes back malignant, the closure does not handicap you in any way in doing the radical operation. If it comes back benign, you are through. Have the pathologist make a paraffin section as soon as possible as a check.

The microscope, if not essential, is a good guide, and it will in the hands of a competent pathologist do as much for the younger and less experienced surgeon as for the older and more skillful. It is more essential in the possibly benign than in the frankly malignant, but it should be used as a check in all cases. Be the surgeon a real clinician and perfectly honest, his percentage of mortalities can be reviewed with greater confidence.

This should not be spoken of as an operation. Surely, it is not mutilating, but it should be considered the safest, surest and sanest way to properly diagnose a lump in the breast. If someone knows a better way in which to handle these cases, I shall be only too glad to adopt it.

#### SUMMARY

(1) Unless you are willing to wager your life that it is a benign tumor, consider it guilty and attempt to prove it innocent.

(2) A good pathologist and a fairly good surgeon is a better combination than an expert surgeon and a reasonably good pathologist.

(3) Remove every tumor of the breast.

#### REFERENCES

Jackson, Jabez N.: "Diagnosis and Surgical Management of Tumors of the Breast," *The Journal of Iowa State Medical Society*, 17:149-151, (May), 1927.

Horsley, J. Shelton: "Tumors of the Breast with Special Reference to Their Diagnosis and Treatment," *Virginia Medical Monthly*, 53:713-719 (Feb.) 1927.

Gibbon, J.: "Benign Tumors of the Breast," *The Atlantic Medical Journal*, 29:526-528, May, 1927.

Cheatle, George Lenthal: "The Formation and Treatment of Fibro-adenomas of the Breast," *Archives of Surgery*, 13, 617-622 (November), 1926.

Helvestine, Frank, Jr.: "Benign Tumors of the Male Breast," *Virginia Medical Monthly*, 53:35-36, (April) 1926.

Harold D. Caylor, M. D. and Verne C. Hunt, M. D., from the Mayo Clinic of Rochester, Minn., "Bilateral Adenocarcinoma of the Breast," *Annals of Surgery*, April, 1929.

## MALIGNANT TUMORS OF THE BREAST\*

E. C. WALTER, M. D.

Mayfield

We members of the medical profession are prone to talk of our success in our chosen work, but should we become especially exuberant over our recent successes with pernicious anemia or our triumph over the old dreaded disease, Diabetes, or our recent advances in the new field of Allergy, it is only necessary that we go back in our old case records to see how many of our malignant tumor of the breast cases are still living and well and one's ego will collapse like the air from the child's balloon.

Cancer of the breast is an old subject; as far back as we have medical history it has been one of the dreaded diseases of womanhood, and in spite of our efforts more women will die of cancer of the breast in 1930 than died in 1925. Of the thousands of women who die annually throughout the civilized world with cancer of the breast, theoretically, each and every one of these deaths are unnecessary. The breasts, being superficial organs susceptible alike to daily inspection and palpation, offer early diagnosis that are certainly not possible now, perhaps never will be, in the case of the stomach or uterus. The breast is so situated anatomically that it may be easily and thoroughly removed without seriously impairing the other functions of the body.

Malignant tumors of the breast might be called a disease of women, as they rarely occur in the male. We have only had four cases of proven malignancy in the male. There are a number of classifications of malignant tumors of the breast but we will use the following:

1. Sarcoma.
2. Paget's disease.
3. Adenocarcinoma.
4. Duct carcinoma.
5. Acinus carcinoma.

Sarcoma is rare, only 2-3% of malignant breast tumors. The cells are either of the spindle or round type. The growth is rapid. It metastasizes early to other organs, especially the lungs and the mortality at the best is

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high.

Paget's disease of the nipple, as so ably described by Sir James Page in 1874, described as a malignant eczema of the breast. The modern physicians are divided as to whether the disease of the nipple comes first or whether there is already a cancer of the breast that produces a blocking of the lymphates followed by an erosion of nipple and skin. This type of growth responds well to treatment.

The clinical varieties of carcinoma are:

1. Colloid—the large bulky mass, of a low degree of malignancy.

2. The Scirrhus carcinoma, the small hard tumor, seen chiefly in elderly patients; the progress is slow.

3. Medullary carcinoma, the soft cellular tumor with relatively little fibrous tissue, these tumors occur at any age and grow very rapidly, metastasize early and extensively.

4. Acute inflammation carcinoma is the worst malignant form of breast tumor we meet. It appears in one or both breasts. Often there is no palpable tumor. The condition resembles an infection but a few days will quickly demonstrate the difference. Operation does little good, in fact seems to accelerate the disease.

5. Papillary cysts Adenocarcinoma, characterized by bleeding from the nipple. This type does well with amputation.

6. "Cancer in Quirasse" the late stage of various types with extensive involvement of the skin, a plugging of the lymphatic channels, ulceration and discoloration.

**Etiology:**

We are still a long way from knowing the cause of cancer of the breast but briefly the facts as known are:

1. Acute Trauma, a common belief among the laity.

2. Chronic irritation definitely proven as the cause of external cancer.

3. Heredity—as proven by the work of Maud Slye.

4. Breast Stasis—as proven by works at Memorial Hospital.

**Age:**

A woman at any age may have a malignant tumor of the breast. Our youngest fatal case was that of a multipara 22 years old. The younger the patient the higher the mortality. Murphy long ago observed that a fleshy young woman rarely recovered.

**Symptoms:**

The symptoms of an early malignancy are:

1. Small hard lumps in the breast.

2. Localized brawny edema of skin.

3. Bloody discharge from nipple.

4. Erosion of nipple. These symptoms are familiar to all of us. These must be recog-

nized by the patient first and then the physician if we are to cure 75%. When the patient comes with the latter symptoms and involvement of the lymphatics our per cent of cures drop down to 20 or 30%.

The growth spreads through (1) Infiltration to the surrounding tissues, (2) permeations or growth down the lymph vessels, but more often by means of (3) a lymphatic embolism or (4) blood embolism.

Unfortunately the breast is richly supplied by blood vessels and well drained by a splendid system of lymphatics that drain into Axillary, Sternal, Subclavicular lymph glands, to the Epigastric fascia, the Pleura or to the other breast and Axilla.

**PROGNOSIS**

In 1890 some one in going over his case records for cancer of breast at the University of Pennsylvania was surprised to find that none of his cases were living over any period of time. The younger Gross lost all of the first 100 cases he operated on. At this time only a simple amputation was being done. Since we have followed the teachings of Halstead and others of a radical extensive operation, our per cent of cures are increasing but are far from satisfactory. The use of X-ray and radium in our hands have yielded little. The statistics of others bear us out that the mortality of those given pre and post operative radiation is practically as high as those not given radiation. In fairness to these agents we would say that in all of our hands the worst cases are given these treatments.

J. H. J. Upham in addressing a recent graduating class at the Ohio State University said: "That a successful surgeon must possess not only a certain manual dexterity but also a certain ruthlessness of temperament which enables him to inflict pain if necessary, destroy tissue, to maim possibly, to shut his ears and heart to temporary suffering to the end that a life may be saved." I know of no place that this is so well applied. A surgeon to cure even a part of these cases must destroy and remove extensively, carefully and minutely not only the breast, pectoral muscles and deep fascia down to the bare chest wall, but also the axillary vessels and plexus must be cleane and the supra-clavicular glands removed. Unless he is willing to do this conscientiously and thoroughly the patient will probably live longer if left alone. If the patient comes to him in the late stages, he will gain nothing operating on this patient, for if he does an extensive mutilating operation without results this patient will be the cause of a relative, friend or neighbor harboring her lump in her breast until she too becomes an inoperative case. Before any case is subjected to an operation an X-ray



study of chest and careful study of the body should be made to be sure metastasis has not already taken place.

Ewing in a recent article considers cancer as a public health problem and believes it should be considered as such. For the past 15 years the government of Sweden has endowed the government institute in Sweden, which is probably the leading cancer therapeutic institution in the world; Norway and Denmark have institutions almost the equal, England has been backward in her cancer work. In this country the states of Massachusetts and New York are taking the lead.

Unless some new therapeutic agent, of which we now have no knowledge, is developed, the progress made in the treatment of malignant tumors of the breast must come through public education. There is a difference between advertising and education. Some of the larger biological houses and life insurance companies are to be complimented on their recent magazine articles and methods of public education. The public is anxious to learn. I frequently have a patient tell me that he gets up at 5 a. m. and listens over the radio to a gentleman out in Kansas describe his methods of treatment with fresh unadulterated goat glands. The public will listen to us as reputable physicians as well.

Every woman should be taught that at any time a lump in the breast is found the breast should be examined by a physician. If it is malignant a thorough removal gives an excellent chance of a permanent cure, and the physician must remember that a failure to diagnose an incipient cancer costs a human life.

#### DISCUSSION

**E. L. Henderson, Louisville:** I certainly have enjoyed these two papers very much. I think Dr. Northcutt and Dr. Walter have given us two excellent papers. It is practically impossible to consider one without considering the other.

In regard to non-malignant tumors, I don't think there is any surgeon who has had a great deal of experience who has not had the experience Dr. Northcutt spoke of: Having removed tumors that they did not expect to be malignant that were malignant.

I remember only a few years ago I removed a tumor from a girl in the early twenties, that I didn't dream of being malignant. I did not have a pathologist present at the time because I did not think it was necessary. Two days later, when I received my report, it was very embarrassing to have to go in and tell this girl and her family that she had to have a radical operation.

I think that in practically all cases, you should have a pathologist present and that you should have an immediate diagnosis, regardless of age.

In regard to malignant tumors, I think Dr. Walter, when he spoke of public health, sounded a keynote. I don't know of any place in medicine or surgery where it is any more important to educate the public than it is in breast tumors. If we could have some one to talk over the radio once a week, or once a month, on public health conditions and to bring these subjects properly before the public, I think the public would be just as much interested in listening to a doctor talk about scientific subjects as they would be to listen to some man talk about goat glands, and I think that in the future, the greatest advantage lies in educating the public.

**J. H. Blackburn, Bowling Green:** We have had two very, very interesting papers this morning, and papers that ought to be worth while to us. I want to speak particularly of two phases of this subject of cancer, Dr. Walter having asked me to discuss his paper.

I think unquestionably cancer is on the increase. There have been a number of reasons offered for this: The early diagnosis, a more complete diagnosis, and a more complete physical examination, and the education of the public are all factors in the increase in cancer. And yet I noted in last Saturday's Journal of the American Medical Association that the Registrar General of Scotland, in discussing this condition of cancer of the breast, or of cancer in general, in Scotland in his last report states that unquestionably cancer of the breast is increasing more rapidly than cancer in any other part of the body.

The other point is the question of age. Within the last two years I have had four cases under 30; one 26, one 27, and two 28. Of these four cases, one of them was unquestionably malignant, one was suspicious, and two were unquestionably benign, from the clinical examination and history. The microscopic examination of those four cases showed malignancy, and I had the rather embarrassing situation, as experienced by Dr. Henderson, of having a young woman, 26 years old, come back into town, after she had gone out, to have her breast removed, when I had told her that it was unquestionably a benign tumor.

I think that some of us older men, like Dr. Louis Frank and some others around here, will remember that if a woman was 45 years or over, we said cancer. If she was 40 or under, we said a benign tumor. That was the way I was taught, gentlemen, by your old friend Dixey Douglass whom you remember. Now, we can't regard age because we know that many of those cases that are distinctly benign clinically prove microscopically to be of a malignant nature.

What are we going to do about it? I want to agree with Dr. Northcutt that unquestionably every tumor of the breast ought to be removed and removed early. The education of the pub-

lic is undoubtedly having an influence in getting people to us earlier. On the other hand, in tumors of the breast, as in some other things in life, old human nature comes in. They don't all take our advice, and we are forced to keep some of them under observation, but my rule has been, more and more, to urge every woman with a tumor in the breast to have that tumor removed, and in that way I believe we are going to save the greater number of lives.

**P. H. Stewart, Paducah:** I want to agree with the gentlemen who have preceded me in this discussion, by saying that in my judgment this Society will not have two more important papers presented than are these. The question of cancer of the breast is a living question. It is a question that confronts us probably with more concern today than any other pathology of the human body. Of course, women are more prone to have cancer of the breast than are men. That goes without saying.

I want to agree with Dr. Blackburn in the age limit in which to look for cancer of the breast. We were taught by the best men in the profession in that day and time, that when a woman under 40 years of age had a tumor of the breast it was a benign tumor, but observation and experience since that day has reversed the opinion, and we believe today that cancer of the breast in a woman 25 years of age is not at all an uncommon condition, and the burden of the eradication of cancer, or the control of cancer of the breast, or reduction of mortality rests upon the shoulders of the medical profession.

The medical profession has succeeded in reducing the mortality from tuberculosis, in reducing the disability from hookworm, and many other diseases, and it is equally as competent to reduce the mortality from cancer of the breast in women.

Probably you may not be able to do it at an early date by surgery, by medicine, by application of any kind, but you are able to do it, as has been pointed out here by the authors of both papers and by those discussing, by education and by calling it to the attention of women through any legitimate channel, whether it is in the school room, whether it is in the pulpit, or whether it is in your women's society, or wherever the opportunity may present itself. The medical profession should assume the burden to carry the message to the women to look closer, to educate the women to look for tumor of the breast.

I believe that if the medical profession would adopt the policy of getting every woman in the United States to make close, frequent observation of her breast—every woman 20 or 25 years of age or older, to make frequent, close examination of her breast for tumors, to discover the existence of a tumor there, the mortality from

cancer would be cut 50 per cent, as soon as you can teach and train your women to frequently look for this condition, and to immediately, upon discovery, consult the family physician who will give conscientious advice.

What is that advice? Whether you will keep it under observation or whether you will recommend an immediate removal.

I can picture only one tumor of the breast that should be left alone. That is a known malignancy of the breast with metastasis into the axilla and metastasis into the lungs. All other tumors should be removed, whether malignant or benign. If benign, remove them before they become malignant, and you will also find a larger percentage of benign growths prove to be malignant when subjected to a microscopic examination.

I think this whole question of the reduction of mortality, for the present, at least, rests upon educating the women to this frequent, close inspection of their breasts and immediate consultation with their family doctor. We all hope that we can see a ray of light coming down to womenkind for the cure of a known cancer, but that is so far in the distant and so uncertain, that in the meantime I think we should bend our efforts to get this point of education to the women and then we will have done our duty. (Applause).

**Dr. Y. Keith, Louisville:** The few remarks that I have to make here will be entirely on carcinoma of the breast. As you all know, most tumors of the breast are seen by the surgeon first, and the most that we see are metastasis or nodules in the axilla or metastasis of the bone.

I would like to say a few words in regard to what relief you can expect for the patient from X-ray therapy and the benefit that you can gain from X-ray examination of the patient before operation.

I don't think that any patient who has had a tumor over a few months' time should be subjected to an operation without first having an X-ray examination of the breast to see if she has metastasis in the lungs. Any patient who has had a cancer of the breast very long should have the chest X-rayed.

We quite frequently have patients coming in from whom we can get a definite history that they have had rheumatism over a period of six or eight months before they had the breast removed. What relief can you expect for a patient from X-ray in cases of that kind? We have had a number that have gone as long as three, four and five years under the treatment for bone metastasis. You can expect, in the most of them, relief from pain. Particularly is this true if you have only one or two of the vertebrae bodies showing evidence of metastasis. You can carry these patients along and be a great deal of benefit to them.



We just recently had a patient who had had a breast removed twenty years before, supposedly benign. No microscopic examination was made at the time, and she had a destruction of three or four of the bodies of her cervical vertebrae. She was wearing a brace to support her head. She had metastases in the skull, and in the lumbar spine, and ribs, and in the scapula, and in the bones of the pelvis. I say, "What good are you going to do with a patient of that kind?"

She was told by her family doctor that she had neuritis. That patient was carried along for a period of two years. She was comfortable most of this time and received very little X-ray. She had X-ray only on the areas that she had pain. In other words, if she would have pain in her hips or dorsal spine, she was given two or three doses of X-ray. She gained about fifteen pounds under this treatment in six months, and she went along without any severe pain and did not receive any opiates. That is what you can expect in relief from X-ray with no hope of cure whatever.

In the patients that come in with metastasis, and we mean new growth metastasis, we feel quite sure that those patients can be greatly benefited by X-ray therapy over the axilla, preferably removing the breast within the first three weeks after the X-ray, planting radium in the axilla, and not attempting any radical surgery. Those patients that have metastasis in the axilla will usually have a mass above the axilla, and you can do more for them with X-ray and radium in the axilla than you can by attempting radical surgery. Palliation and not cure is to be expected in metastatic carcinoma of the breast.

**R. C. Burrows, Cunningham:** I just rise to ask a question. The papers were confined to tumors of the breast, and I have had some late experiences that make me feel as though what is applicable to tumors of the breast is also applicable to tumors of other parts of the body.

A few years ago a classmate asked me to look at a tumor on her forehead. "Why," I said, "It is a harmless lump. It will be absorbed." Last year I saw that patient just a few days before she died. I was never her family physician. Her whole scalp was gone and the bones of her face were bare. Before she died her whole scalp was gone, from the malignancy of what seemed to be a harmless little lump.

**A. D. Willmoth, Louisville:** If we are ever going to do anything with cancer, it is along the line of education. It has been said in the past few months that six months from the time a tumor appears in the breast it is beginning to metastasize. If that is true, if the pathologists are correct in making that assertion, then we have little hope of getting cases when they are purely local because the woman herself does not know the tumor is present until after it has

been there much more than six months. Most of them have been there for many months before the patient herself knows that she has it, and then there is another elapse of time due to the optimistic public, and the ultra conservatism of the physician many times, and then the third delay in the patients' making up their minds to have something done after they are once advised to have surgery attempted in some form.

My own experience has been that you cannot control cancer patients the same as we do tuberculosis patients. For instance, you take the young woman who comes into your office, and you probably make an X-ray examination of the chest, or have it made, and you tell her that she is a tubercular patient, as happens in my own home town, for instance, and she will cry and say that she isn't going to do it, and that she doesn't propose to do this and that. But by the next morning she is perfectly willing to have Dr. Miller see her and to take her to Waverly Hills. She will surrender in the next few hours.

But take the cancer patients that come to you. They come in at seven o'clock in the morning. They would like to be operated on at eight o'clock and they will leave on the eleven o'clock train if it is humanly possible. That is just about the way the average patient wants to get away with the cancer.

They go back to their homes. They have no further observation. They won't have the X-ray, and they won't have radium, and they won't stay to have anything done, and I think the only hope that we are going to have in the management of cancer, to lower the mortality, is along the line of education. We must educate the public to the point that they are educated about tuberculosis, and when we do that, we stand assured to see the cases earlier, and we stand a chance to get those patients to cooperate, to return to have the slightest recurrence of the growth which may be in the skin taken care of. There may be none in the lung or in the glandular structure, and it may be just beneath the skin, where you have made your incision, and they won't even return to you to have that treated the second time. Until we can get the public to cooperate more fully we have very little chance of lowering the mortality from cancer of the breast. (Applause).

**F. P. Strickler, Louisville:** There has been quite a bit said about carcinoma. I think we have to be a little careful in drawing a parallel between a rat carcinoma and a carcinoma in a human being. Most carcinomas in the rat tend to remain localized and they do not metastasize at all. So I don't think you can compare that type of carcinoma with the carcinoma that occurs in the human being.

I see no reason why any doctor should be embarrassed over a tumor in the breast, because I see no reason why a doctor should attempt to

make a diagnosis of the tumor of the breast without having microscopical slides made of it. I agree thoroughly with Dr. Northcutt that every tumor of the breast should be removed and examined by a competent pathologist, and even competent pathologists differ about sections when they are under the microscope. So if pathologists do not agree at all times on sections, what chance has a surgeon to make a diagnosis of a tumor that is lying deep in the breast tissue? He has no chance in the world. If you will just withhold your diagnosis until you get your section passed on by a competent pathologist, I don't think there will be any embarrassment.

There is another point that I would like to mention and that is carcinoma in young people. Carcinomas in young people are more malignant. A much worse prognosis should be given because the lymphatic system is much more active in younger patients than in older patients. And any carcinoma that occurs in a young individual, say 22 or 18 years old, should be given a very, very bad prognosis.

**J. T. Reddick, Paducah:** What are we going to do when we suspect a benign tumor of the breast and we are located where we cannot have an immediate microscopical examination of that tumor? We think it is benign. Should we go on and remove that tumor, and, just as soon as we can, send that tumor to a laboratory where an examination can be made? I would like to hear that matter discussed. We are situated that way in Paducah. We have to send to Louisville or to Chicago to get our reports from a competent laboratory technician.

**E. S. Allen, Louisville:** I have enjoyed this discussion very much. I think any pathological factor about which we have so little knowledge as to its cause should be dealt with radically. About all we know about cancer from the causative standpoint is that it is either an embryonic (enlarge) stimulated to growth, having lost its governmental control of function and arrangement, or in normal cells irritated, by something, it develops an atavistic tendency and reverts back to its embryonic type. So, when we know so little about the causative factor, we should, at least, give this pathology great concern. We should deal with it radically.

To my mind a radical extirpation of all palpable glands felt in the axilla is not radical. I believe if we could visualize our field after a radical operation for cancer of the breast, and if we could imagine each cancer cell the size of a pea, after finishing our operation and observing this wide area, we would find thousands of transplanted cells in this new, unprotected tissue.

We know that pathological cells have some type of pathological secretion. This irritating enzyme stimulates nature to form a capsule of protection. We break down this capsule, all of this local protection cellular resistance, and trans-

plant a malignant, active cell into unprotected tissue, and into fertile ground.

In my close association with Dr. Keith in his X-ray and radium therapy, I have seen cancers of the breast treated alone, with X-ray and radium with an apparent cure, and it occurred to me that the radical surgical method of dealing with cancer of the breast was to apparently cure them as near as you could with X-ray and radium and then do an extirpation. This has been my method, so far as I could carry it out, it isn't always applicable. Some patients will not submit to the double treatment. Then to remove the breast surgically and to implant radium at the time of the operation into the axilla, Dr. Keith having control of that part of it, removing the radium in intervals of three to four hours, until, at the end of twelve or eighteen hours, it is removed.

In my hands, this has given better results. The patients have lived longer, and quite a number of them are still cured, after five, or six, or seven years. (Applause).

**Guy Aud, Louisville:** I think we are all thoroughly agreed that any improvement in our results in the treatment of cancer of the breast is to come from getting these patients earlier. It would seem that with our present knowledge and skill in surgery we are going just about as far in operating upon these cases as it is possible for us to go. In other words, we are just about as radical as we can get. So that if we are to accomplish anything, we, of course, must get them earlier. That, to my mind, is the crux of the whole situation.

There is a class of cases that, while we can't cure them with surgery, I do think we can render them a very great assistance. That is the very old and debilitated. These cases, of course, are not going to stand radical surgery, but such cases are very markedly benefited, and I have had a number of them who have gone along for years and died of some other condition, under this treatment.

We take those cases, and, under a local anesthetic, we excise the breast and place in large doses of radium, both at the site of the breast and in the axilla, and perhaps follow this up later with X-ray, and these patients get along very nicely. They are out of the hospital in a few days. They have gotten rid of a great deal of their discomfort. They have gotten rid of the breast that very often will break down later on and become very obnoxious to them and to those who are around. So I think that while we can't cure these cases under a local anesthetic, we can remove these breasts, and by giving them large doses of radium and X-ray we will carry them along for a number of years, and perhaps they will die of something else. I think it is well worth while, when it is impossible to deal with them by means of a radical operation.



**J. D. Northcutt** (In closing): Dr. Strickler has to my mind well emphasized the vital points of the subject in his discussion.

While attending one of the large clinics in this country, a Clinician mentioned the fact that the mortality in cancer had been lowered; but that it had been due more to education and having women scared into our offices for periodic examination than to research. While we all appreciate the value of research, early diagnosis and prompt action is of greater value in this particular field.

**E. C. Walter**, (In closing): The question was brought up about the different ages of the individuals. Murphy, a long time ago, observed that a young, fat woman rarely ever recovered from a malignant tumor of the breast. In regard to the examination of these patients Ochsner was of the opinion that one should be careful in his examination of these patients. With their rich blood supply and their extensive lymphatic channels, there is always a chance that if we pick up those tumors and squeeze them around, we will send the benign emboli on to some other parts of the body.

A thing that was not mentioned by any of us was that from 5 to 10 per cent of all malignant tumors of the breast will occur in the other breast, and we should impress our patients, even though we get a cure in the one side, to watch carefully on the other breast.

Dr. Keith made an excellent statement, in that no patient should be subjected to extensive surgery until we are sure by X-ray examination that the lung or some other part of the body, some bony part of the body, is not already involved.

In regard to metastasis within six months, I think that is true in certain pathological types. I don't think that is true in the scirrhus type that we see. You all have had the scirrhus type of carcinoma. The pathology is familiar to you all: Thin, long lines, well walled off with fibrous tissue. I have seen them live five or six years with no metastasis anywhere, and die from something else.

One type of early cancer of the breast that is better left alone is the acute inflammatory carcinoma. It comes up like a house on fire, and we will not do anything with this type. The patients will die anyway. They get some relief from radiation.

In regard to the patient with the extreme involvement, the nodules resembling a coat of mail, I am of the opinion that if we have any involvement of the neck, we had better leave that patient alone. I believe that patient will live longer and more comfortably if let alone.

Here is another thing about that patient: If we do a radical operation on an inoperable patient, we know when we do it that that patient is going to die shortly. She will go back home.

Her malignancy will break out again in a short time. She will be the cause of a friend, or of a neighbor, or of a relative hiding her tumor of the breast, and I believe we had better let that patient alone.

In regard to the education in churches, our Secretary, Dr. Hunt, about a year or so ago, assigned us all to different churches throughout the county in which we are located. We went around and made talks on cancer and for the next few days our offices were flooded with people coming for examinations. Most of them were non-malignant things, but they wanted them removed. However, we did pick up some malignancies that the patient didn't know about.

I couldn't help but think that right now with the drought and many people out of work, it might be a good thing if we went around and talked at churches. (Laughter).

## INJURIES TO THE EYE FROM THE STANDPOINT OF THE GENERAL PRACTITIONER\*

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Injury to the eye is one of the most interesting and important subjects with which the doctor has to deal. By far the greater number of these injuries are first treated by the man in general practice and it is highly important that he be able to give the proper care in such injury. This care may be said to have three heads. First, Correct initial treatment of all cases of injury. Many times no other treatment is necessary; Second, The knowledge and ability to continue treatment when necessary; Third, Willingness to refer a given patient to the ophthalmologist when skill and judgment beyond the ordinary is desirable.

In a sense there is no such thing as a minor injury to the eye, rather the classification should be: frankly Serious Injuries and Potentially Serious Injuries. Neglect of the slightest injury or improper treatment of it may easily lead to a badly impaired or useless eye, or serious disfigurement may result.

Nature has wonderfully protected the eye with the bony socket and with lids so quick to act in protection of this delicate organ. As a consequence these structures bear the blunt of many blows. As the number of automobile accidents increase injury to the tissue of the face become more common, and those around the eye receive their share.

Fracture of the orbit is always serious. The lymph and blood channels from this region

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lead into the cranial cavity and infection is too often followed by extension to deeper structures with complications of meningitis, brain abscess, and often death. The location of the frontal sinus above, the maxillary sinus below, and the nasal cavity on the mesial aspect of the orbit is wonderfully protective to the eye ball, but each harbors virulent organisms ready and willing to cause trouble whenever the fracture extends into any of these cavities. The bony framework and surrounding tissues are so delicate that the majority of fractures extend into one of the cavities mentioned and is therefore compounded and potentially infected. Happily the blood supply in this region is so abundant that serious infection is not met with as it would be otherwise. Non-specific protein therapy may be of great value in combatting infection in this, as in other eye injuries. The patient is put at absolute rest, hot compresses are applied to the site of injury, and a careful watch instituted. Extension of infection calls for surgical intervention. A reasonable effort should be made to restore the parts to normal, but excessive manipulation is to be avoided.

The lids are a ready target for any injurious agent. The ordinary "Black Eye" is very common and when this is the only injury, and it is promptly and properly treated, rarely causes any serious injury. Cold applications are first applied, and a change made to heat in a few hours.

Lacerations of the lids are common. Healing is usually prompt. Distortion may result and is both unsightly and accompanied by loss of protective function. If the superficial structures alone are involved, careful cleansing of the wound and exact approximation of the edges will yield a good result. When the tarsus is involved we must be careful to restore the anatomy to normal.

Burns of the lids from acids, alkalis and heated substances are common and differ little from similar injuries on any other portions of the skin except that the ball may be also burned. Scar tissue of this region is a particularly serious consequence of deep burns, since free movement of the lids is impaired. Remedial agents must of necessity be mild to avoid injury to the ball. Picric acid in an ointment base is probably the best remedy at our disposal. Surgery may be necessary after healing is complete to restore the anatomy to normal.

Serious injury to the eye may result both directly and indirectly from strain caused by defects in vision, improperly fitted glasses, intense light and improper use of vision. Symptoms are often referable to other portions of the body and may overshadow the real cause

and render diagnosis difficult. The service of a competent ophthalmologist are required in such cases for both diagnosis and treatment.

In recent years the use of Ultra-Violet and Infrared light therapy has gained well deserved popularity in the treatment of disease. The harmful effects of the ultra violet lamp are well known and guarded against. This lamp damages only the superficial tissues, conjunctiva, cornea, and sclera. That the infrared lamp is even more harmful to the eye is not generally known. It produces its deleterious effect on both the superficial and deep tissues of the eye. Blow torches and other forms of intense heat and light also exact their toll from careless workmen. Prevention of such injuries is simple and requires the proper use of protection to the eye. After damage is done, hope of recovery is slight at best.

Injuries to the eyeball are many and varied. The symptoms are much alike in all cases. Pain, photophobia, redness, swelling and tight closure of the lids. Therefore a careful history of the case should be obtained, and a painstaking examination of the eye in a good light should be made in every instance. The recumbent position is often best for such examination. Whenever there is the least difficulty in making the examination there should be no hesitancy in the use of local anesthesia. This will give the patient comfort and will also facilitate examination. A 2% solution of Butyn is probably the best for this purpose, although a 4% solution of cocain is excellent. A few drops of ether will produce the desired effect.

The prognosis in eye injuries is always uncertain. A slight injury may cause total blindness, while the recovery of a badly damaged eye is sometimes miraculous. The presence or absence of infection has more to do with prognosis than any other factor. Except in the case of massive tissue damage, it depends almost wholly on this factor when the management is correct otherwise. Therefore in our examination or treatment of the eye we cannot exercise too great care in maintaining asepsis and endeavoring to obtain antisepsis of the region involved. Sterile instruments in clean hands are imperative. We have a number of antiseptic drugs available for use in the eye to inhibit the growth of bacteria, and each of them has a large and distinguished following. The silver salts are valuable in the proper dilution. Mercury in some form is an old and reliable friend. And many of the other antiseptics, old and new, have decided merit. The choice of drugs is not nearly so important as is the fact that one of them should be used.

In every injury of the eye we are confronted with the nightmare of sympathetic Ophthalmia. This is almost entirely a complication of infection of the ciliary body induced by a penetrating wound. It will rarely, if ever, occur if the initial infection of the first eye is prevented. As is so often stressed in modern medicine, prevention makes cure unnecessary. It is well to remind ourselves again of the possibility of infection reaching the injured eye from a focus elsewhere in the body.

Burns of the eye are much more common in industrial than in general practice. They require the most skillful treatment available, and are always slow in recovering when much damage is done. Time is ever important and the general practitioner should be able to give the proper first aid at once. Except in most trivial injuries of this character the further management should be in the hands of the specialist.

Acids may reach the eye in large or small amounts. The damage done depends upon the amount and strength of the acid and the length of time it is in contact with the eye. The conjunctiva, cornea, and sclera are the tissues damaged. The eye should be irrigated at once with a weak solution of soda, normal saline or plain water in copious amounts. An anesthetic may be useful to reduce pain. Bland oily applications are made to the eye, an antiseptic solution instilled, a light dressing applied and the patient put to bed. Atropin is useful to put the injured eye to rest and it is often of advantage to put the bandage on both eyes.

Burns from alkalis have many of the characteristics of acid burns, but are relatively more serious. Quick lime entering the eye is slaked by the tears and damage results from both the caustic effect of the alkali and the heat generated by the slaking process. Pain is intense and an anesthetic is required before examination and treatment can be accomplished. The eye is cleaned of all of the offending agent and then irrigated with a weak solution of water. Diluted vinegar makes an excellent wash for this purpose. Again bland oils and some antiseptic are instilled into the eye and the patient put at rest and a light bandage placed over one or both eyes. Ammonia reaching the eye is very destructive and the damage is greater than appears on first examination. Ether is very irritating but the results are rarely serious or lasting.

Burns from molten lead are rarely as severe as we could expect from the nature of the offending agent. Explosions of steam, gasoline, etc., produce their quota of eye burns. Treatment consists of relief of pain, prevention of infection, rest and bland oils. Scar

formation, especially between the conjunctiva of the lids and that of the ball ever threatens. These may be rendered less serious by placing small oil-soaked pledgets of cotton beneath the lids.

Blunt objects too large to enter the eye cause varied damage. Swelling and slight hemorrhage may be the only result, with no permanent harm. On the other hand a blow which seems to have done little damage may develop serious trouble, days or weeks later. Destruction of the superficial tissues, rupture of the ciliary body, dislocation of the lens, rupture of the choroid, detachment of the retina, hemorrhage into any or all of the tissues, or degeneration of the optic nerve may be an early or late complication of such an injury. First aid should be given by the general practitioner, which will consist of rest, antiseptics, relief of pain and a tight bandage. When complications arise the management of the case should be in the hands of the ophthalmologist.

Small objects of any character may reach the eye ball. Some will remain on the surface, some will become imbedded in the surface tissues and some will penetrate more or less deeply into the eye ball. In rural practice, the most common objects to reach the eye and not become attached are: sawdust, insects, seeds and their hulls, and cinders; while in the industrial centers, bits of metal are more frequently found. The symptoms are too well known to merit enumeration. Treatment consists in first locating the offending agent, and this is often most difficult, and then removing it under aseptic precautions. Usually a cotton-tipped probe is the only instrument required for the operation. An antiseptic must be placed in the eye, yellow oxide of mercury ointment probably being the best for this purpose since it also acts as a lubricant for any slight abrasions of the conjunctiva. A small moving object in the conjunctival sac may leave many of these and then be washed away by the tears. On examination the foreign body cannot be found, but a varying number of small reddened painful areas are seen on the conjunctiva. Their detection can be rendered less difficult by the use of fluorescein, which stains the abrasions, but not the normal tissue. Each of these is the site of a potential ulcer and particularly so if the cornea is involved.

An antiseptic ointment is very grateful to the patient. Bits of green vegetable matter seems to be more irritating than any other objects. This calls to mind the experience of a fellow physician, who, coming home late at night, walked into a barberry bush on his lawn, thirteen distinct lacerations of the conjunctiva could be counted, though none of the



foreign matter was found in the eye. The pain was so severe that repeated installations of anesthetic were necessary.

Many small objects may become imbedded in the superficial layers of the eye ball. Small bits of emery, metal, and cinders are common. Splinters, briars and even spicules of the chestnut burr are seen in the country practice. The object is first located, and if the least difficulty of examination is present, the use of an anesthetic should be the initial step. It is well to remember that an object imbedded in the ball will cause pain of the conjunctiva of the lid and visa versa. If the object is lodged in the conjunctiva of the lids, the easiest way to remove it is to pinch up the tissues immediately surrounding it and remove the whole with scissors. No stitches are needed. When the object is on the ball our task is different. The lids must be kept apart, and nothing will take the place of a speculum for this purpose. The eye must be held still by the patient or the doctor. A spud or knife is used and the point of it is placed under the object and it is lifted out. A small amount of stain or char will do no harm, but when much is left, it should be removed, since a portion of the offending material may be left, or the char or stain act as a foreign body.

Except in elderly patients it is wise to use atropin at least once, in which case the patient should stay in doors or wear a covering over the eye when out of doors. No other dressing is needed. Treatment is of course different should infection develop, and has no place in this paper.

Any foreign body that strikes the eye with sufficient force will penetrate more or less deeply into the tissues of the ball. One class of such injuries is most regrettable. A small child, if allowed to play with any sharp pointed object, usually scissors or knife, is always in danger of thrusting it into his eye. Dr. Chevalier Jackson has sponsored a crusade against misleading labels on packages of commercial lye because he has had to treat so many boys and girls, hardly out of babyhood, whose throats have been damaged by it. The number of little folks whose eyes are injured by sharp implements is so much greater, that a campaign to label all scissors dangerous weapons would not be amiss. If the penetrating object is like the above mentioned, and all portions have been, or can be extracted from the eye without difficulty, our treatment is similar to that for non-penetrating wounds. An antiseptic is instilled into the eye after it is cleansed. Should a portion of the iris protrude through the wound, it is clipped off. Eserine is used in the eye to contract the pupil and insure that the iris is not caught in the

marginal wound. When healing has begun, atropin is then used. A snug bandage is placed over the eyes and the patient put to bed. Should the wound be gaping it is well to suture a conjunctival flap over it until healing has progressed to a satisfactory point, when it may be released, and it will return to its original position.

Objects penetrating the superficial layer of the ball may come to rest in the anterior chamber, lens, ciliary body, vitreous body, the posterior coats, or pass into the tissues behind the eye. If the eye is clearly and thoroughly destroyed by the foreign body, enucleation should be done. If the general practitioner is familiar with this operation the urgency for it offsets the disadvantages it may have in his hands. If hope for some degree of usefulness exists, the patient is given first aid and then referred to the specialist. The treatment consists of relief of pain, antiseptic cleansing of the eye and snug bandage. Today it is rarely true that expert treatment cannot be obtained, but if this should occur we have the choice of watchful waiting or of bunglesome interference. Few in general practice possess the ability or training in the use of the ophthalmoscope and X-ray for location of foreign bodies, or if one is located, the skill to remove it. If such a situation exists it is probably best to give expectant treatment and resort to enucleation, should complications arise.

It is not within the scope of this paper to discuss the merits of the different methods in removing foreign bodies from the eye ball. That would belong more properly on the program of the eye, ear, nose and throat section. However the method of Sweet for localization and the perfection of the electro-magnet has simplified the procedure in a vast number of cases.

#### DISCUSSION

A. L. Bass, Louisville: Drs. Hiestand and Atkinson have given a paper that is not only a credit to the general practitioner, but is good enough for the specialist. One of the most important points in the paper is in the first paragraph when it stresses, first, the importance of correct initial treatment of eye injuries; second, the knowledge and ability to continue treatment; third, the willingness to refer the patient to the ophthalmologist when it should be done. The correct initial treatment is most important, and in a great many instances a mistake in judgment, apparently slight, may be the cause of the loss of an eye.

Relative to laceration of the lids from injury, the trauma may be marked and the result look bad at first, but with the proper replacement of all lacerated edges with silk or linen sutures, plus antiseptic and aseptic precaution, it is in-



teresting what excellent results are obtained in many instances.

About the best treatment for ecchymosis of the lids, or the so-called black eye, is warm saline (two or three drams of sodium chloride to the pint), compresses, ten to twenty minutes every three hours. The discoloration and edema will clear up in one-third the time if left alone.

Relative to burns from alkali or acid, after the offending agent has been removed or neutralized, as the case may be, and the patient made as comfortable as possible, the extent of the injury should be noted and proper treatment instituted. The frequent instillation of olive oil is valuable and the occasional rotation of the eye to prevent symblepharon, and application of 1 per cent holocaine ointment when pain is a factor.

Reference is made in the paper to injury due to eye strain from refractive error and improperly fitted glasses. It is estimated that only about 12 per cent of eyes have normal vision and 25 per cent of the glasses prescribed are fitted and adjusted properly. It is needless to say that the optician furnishes a large proportion of this 75 per cent. It may be fitting to note at this time that pain due to eye strain is either in the eye, over the eye, in the temple or occiput, aggravated by close work. An eye with a refractive error is never at rest during waking hours.

I want to recommend the use of butyn, 2 per cent solution, instead of cocaine solution for relief of pain from injuries, removal of foreign bodies, and for making examinations. Cocaine solution wrinkles the cornea and destroys the anterior epithelial layer. If you want to make a fundus examination you have to use cocaine solution, as it dilates the pupil but does not paralyze accommodation, while butyn has no effect on the pupil and does not harm the cornea.

The prognosis of eye injuries in a great many instances is uncertain. Strict asepsis as well as antisepsis is desired in the primary treatment. After the instillation of butyn solution and atropia if indicated, the use of 1:3000 bichloride ointment with eye patch for twenty-four hours is indicated. If the eye is perforated without the invasion of a foreign body, the same treatment is advocated, with pressure bandage, and the patient should be hospitalized. If there is intraocular foreign body, it should be removed as soon as possible and the patient kept in bed for about two weeks. It is very difficult to keep these patients in bed, and I have been sorry more than once for giving in to the patient and letting him up too soon, spoiling a good result.

Fluorescein is valuable in 2 per cent solution instilled on the cornea when there can be question of an abrasion or the extent, and may be repeated from time to time to note the progress of the healing.

If you have a perforating wound of the cornea with gaping, after the asepsis, the conjunctiva should be dissected up at the sclero-corneal margin and sutured over the cornea. This procedure will save a great many eyes which would otherwise be lost.

**Gaylord C. Hall, Louisville:** I think Dr. Hiestand and Dr. Atkinson are darned good eye doctors. I don't believe any of us could have made the paper any more definite or any more thorough.

First, in regard to the lids, in eye injuries I think it is preferable to have immediate suture.

Mention was made of the deformity that sometimes results following suture. Let me give you two bits of advice. I haven't a bit of quarrel with the implements of the general surgeon except his needles, and if you expect to make an accurate apposition of badly lacerated lids, don't use one of these two or three-inch needles that carry No. 2 catgut, but get some fine, full curved needles and use the very finest available silk. Start, if the cut extends through the free border of the lid, at the free border. Accurately approximate that and then bring the rest of your laceration together as best you may, and you will have very little deformity following if you will thoroughly and accurately approximate the free edge of the lids first.

Regarding foreign bodies in the cornea, I would be just a little bit more careful about removing the ring. You will find that if this foreign body that has become attached to the cornea is hot, you will have a central mass of the substance, metal or what not, and surrounding that you will have a little gray ring or a little brownish ring, possibly of burned tissue. If you remove that central mass, which is very easily done, by the way, and leave this ring surrounding it, you will have a red, inflamed eye, possibly, for a week or ten days, until nature heals this whole thing over, whereas if you will be careful with your spud to circumscribe and remove that ring of discolored tissue entirely, you will have very much quicker healing and you will have a very much more comfortable eye.

Regarding pain, I don't believe that any one thing will relieve pain following an injury to the eye, especially involving the cornea (and that is what gives you pain), as well as, after the removal of the foreign body, an instillation of 1:3000 bichloride of mercury ointment, as Dr. Bass has mentioned, and then an occlusive bandage, and keep it bandaged for twenty-four hours or longer, if necessary, to heal over this wound. I do not believe in repeated instillation of any sort of an anesthetic with an open eye. It will not heal, in the first place, as well; it will not relieve the pain as well as an occlusive bandage.

If there is a deep laceration of the cornea and much involvement there, certainly instill atropin,

which will also result in the relief of pain, but certainly keep an occlusive bandage on that eye.

Regarding wounds which open the eyeball, the immediate effect of that is not painful. When an eyeball has been opened, usually you have very little pain. You may have nausea and vomiting, but usually not pain. When that wound closes then the eye becomes sore. If the laceration is extensive, of course, the conjunctiva flattens, as was mentioned in the paper. If an intraocular foreign body is suspected, certainly the first thing to do after cleansing the eye and applying a protecting bandage, is to get the patient to a roentgenologist as quickly as possible, localize the foreign body, and if it is magnetic, as early as possible seek the removal of the foreign body.

**W. P. Drake, Bowling Green:** The first thing we should determine in injury to the eye is just how serious this injury may be. That is one of the first things we should find out. We people who do work for railroads and other institutions, compensation work, know we have to answer, sometimes in court, just how serious the eye injury is. I have had a great many injuries come to me, not only that other men have seen, but after having injuries about the eyes, some about the orbit and otherwise, seeing double and all sorts of things, and it is very important that you know whether this injury is responsible for the condition or not. That is one of the things you should remember.

How serious the eye is injured, too, also demands a different form of treatment, sometimes, whether we should use atropin, whether we should not use atropin. Some general practitioners have the idea that every case that comes in and says "I got hit in the eye," needs atropin. That is not true every time by any means. You may produce a glaucoma by that sort of thing. If atropin is indicated it is the most indicated thing I know of and vice versa.

We also should look out for sympathetic ophthalmia. We know this is more common in the young person than in the adult. A man up until probably forty years of age is more likely to have a sympathetic ophthalmia than after that. We know that is really true; practice and experience tell us that.

I feel this way about the occlusion of the injured eye. If a man comes to you with the cornea all peppered with all sorts of little injuries and you cover up that eye, in twenty-four hours you are delighted to see that there is nothing there, but, if the patient goes on and has an ulcer and you tie it up, I don't think it gets along any better than if you leave it open. Personally I think that, like a great many other injuries, they need drainage. I don't think they get along any better covered up than not covered up. I do believe that a recent injury should be covered until the healing has begun.

Suppose we have a breaking down of tissue and an ulceration, I don't believe that ulcer does any better covered up; in fact I think it does better if you leave it open and let it drain. Sunlight is not going to hurt that eye, though it may hurt the patient's feelings.

I have been in practice ten years or more in eye, nose and throat work, and I have never ordered a colored glass for anybody. If they want to go out and get one, let them get it, but I think colored glasses are a perfect nuisance.

We have phlyctenular conditions that we used to say were due to too much sugar. We know that is not true altogether. We all put colored glasses on children with that condition. I want to say to you that is a mistake. Turn them out in the sunshine and let them have air and sunlight, good diet, and cod liver oil, and they will get better.

The injured eye should be looked after, to my mind, by an eye man after the practitioner has seen it and offered it first aid. An eye is too valuable to leave in the hands of someone unless he really is competent to handle it. I am not saying that you are not, but if you don't feel you are you should refer the patient to a competent eye man. It is very important to send these cases where they may have the proper care. I don't know of anything more important.

If I have an internal injury of the eye, splitting of the cornea, or a puncture, I don't always resort to suturing of the cornea. I find that by doing a flap on the cornea and coapting the parts, I have just about as nice healing as by doing a lot of stitching. The results are excellent along that line.

Any internal injury or puncture of the eye is a serious condition, and in all probability you are going to lose that eye anyway, if it is a very serious injury in any way involving the various coats of the eye where you have hemorrhage and infection. If we get to the vitreous with any sort of penetrating object we are going to have a very, very serious infection.

**Adolph O. Pfingst, Louisville:** I, too, would like to compliment Dr. Hiestand and Dr. Atkinson for they have brought us a very valuable and practical paper. I believe that I am correct in making the statement that most eye injuries are avoidable, that is to say they could, with proper precaution be avoided. Take, for instance, the many accidents occurring to children while at play. I have seen many injuries to the eyes of children while at play produced by knives, forks, scissors and other pointed objects. Missionary work, with parents along the line of prevention by not allowing young children to play with such objects would lessen injuries of this kind and save some eyes. Another practice among children, more especially among boys, is the pointing of weapons, such as B. B. rifles, pop guns, etc., at each other. This is common



practice and the supposedly unloaded innocent weapon happens to be loaded and an injured eye is the result. Unfortunately, such accidents are not limited to children, newspaper reports of accidental shooting of adults by adults being quite common.

Injury to eyes by explosion of dynamite caps is not uncommon, at least if I am to judge from my own experience. I know I have had eight cases, if not more, in which eyes were destroyed from dynamite caps. I have never seen a dynamite cap, but I have seen fragments of them, and they must be very pretty little things. Boys find them in the barn or elsewhere where some individual who has used caps in blasting has left them carelessly. Boylike the child tries to open them with a knife, or he tries to open them with a hatchet or a hammer and the end result is a lost eye, or something worse.

I believe that we could all do a great deal in preventing blindness by lessening accidents, hence I think we should all be a working part of the National Society for the Prevention of Blindness and help wherever we can to reduce the number of ocular injuries.

If you will allow me, I would point out three practical points in connection with this paper. One of them has been touched upon. That is, that the depth of the penetration of a foreign body is usually not in proportion to the amount of pain. We all see these cases where we have either a cinder or a piece of emery from an emery wheel in the cornea, and the individual suffers very severely, whereas, on the other hand, cases with penetrating wounds often complain of no pain at all. It is not uncommon for cases to come to us giving the history of having worked on an automobile rim or striking steel against steel, a hammer against a chisel in some other similar work, in which they are in doubt whether or not something got into the eye, as they are having no pain. Even a good sized piece of steel can penetrate the vitreous humor without causing pain. When you see the case there is often no redness, no pain and only a slight blur of vision to denote the entrance of a foreign body into the eye. If the missile is so small that it is not possible to diagnose its presence within the eye the roentgenologist will be able to decide the question.

The second practical point is one that you can carry home with you for it may serve you and keep you out of trouble. I believe that every man doing practice of any kind should have a Snellen test card in his office. You get the cases first hand, and you should make an examination of their vision and record the vision in each eye at the time you first saw them. After an ambulance chasing lawyer gets hold of them they "lose a good deal of vision."

There is one other practical point that has been impressed upon me frequently, and that is the

question of handling immediately cases of lacerated cornea either from a cut or blow, where the iris protrudes through the wound. We see some doctors who insist that such cases seek the advice of an oculist immediately, and by so doing enable the oculist to remove the protruding iris before plastic material is thrown out and thus save the eye, with hope for vision. Others wait two or three days before deciding that the case is beyond them and thus allowing plastic material to be thrown out around the iris and the cornea. In such cases it becomes a pretty hard fight to save the eye; in fact, many of them are lost. I would re-impress this point, that if you have a corneal laceration with the iris protruding, don't even wait over night, if you can avoid it; but see that the case has immediate attention.

**J. H. Hester, Louisville:** I enjoyed the paper, and think the essayists ought to be congratulated. I am like Dr. Hall, I think they must be eye specialists, because they certainly gave us a very interesting paper to the eye men as well as the family physician. I would like to impress on the minds of the general practitioner some of the important points mentioned in this paper.

I agree with Dr. Pfingst: get the vision. I think that is one of the most important things, because as Dr. Pfingst stated, we have lawyers now looking for these cases; they are nearly all compensation cases, to begin with, and if they can get something on the insurance company they are going to do it.

The first thing I do is to get the vision in each eye individually. I make a record of that, and then I continue daily, if the patient comes in that often, if it is necessary to see him that often, getting the vision each day. You may think the vision will continue to be all right and will remain the same, but it frequently gets much worse. We know that is true because of extension of the injury, resulting perhaps from an infection of some kind. I think it is necessary to get the vision daily in these cases.

One other thing I wanted to mention is this: You frequently have a patient come in, you examine the eye, they tell you there is something in the eye, and you can't find anything at all. It looks perfectly clear. You give them some argyrol or something of the kind and tell them to use that for a day or two, and if it doesn't get all right, to come back. They come back and tell you it is no better and they still have pain. You examine them with your magnifying lenses and everything that you have to try to see the foreign body, and you can't find anything. I recently had two cases of this kind, and I put them under the slit lamp and found a very small foreign body, one that it was impossible for me to see with the ordinary magnification that we use in our offices. I do believe that the slit lamp offers us something where we have such



minute foreign bodies in the eye.

One other thing that I wanted to mention that was treated in the paper and also by Dr. Bass is sympathetic ophthalmia. If the injury is in or near the ciliary body, then you are dealing with a serious condition, and if it is in that region, I think you should have this patient see an eye man immediately, or as soon as possible, because those are the cases that produce sympathetic ophthalmia, and they are the cases that I think we ought to lay more stress on than anything else, because if you have an injury to the eye and the other eye is a good eye and then you get sympathetic ophthalmia and lose that eye, you certainly will feel awfully badly about it later on.

**W. B. Atkinson, Campbellsville, (in closing):** There is one thing that this has accomplished. It has brought out an array of talent to discuss this paper, even if it wasn't any good. That amounts to a whole lot anyway.

In the rural districts the seriousness of the injuries to the eye that we have depends almost directly on how early we see the injuries and how early the antiseptic is instilled in the eye. It is rarely that we see out there a really serious injury to start with. That is the reason we spoke of these things as being potentially serious.

About a year ago I was called to see a little boy who had hurt his eye a week before and had forgotten about it. By the time I saw the eye he had a panophthalmitis. If there had been one or two drops of argyrol or mercurochrome or bichloride, or anything of that sort in that eye, he would have had two good eyes today. He has one. For the country doctor I believe the use of the antiseptic is really the most important thing in the whole paper.

We are advised to send all of our eye injuries to the ophthalmologist. It is wondered why the young men are not going into general practice. Well, we send our eye injuries to the eye man, we send all of our surgical cases to the surgeon; there is left to us typhoid fever and obstetrics. We are now giving typhoid vaccine over the whole state in large amounts; the obstetricians won't let us use pituitrin or chloroform, and we cannot afford to buy gas. That leaves us one thing. We must do spinal adjustments or specialties. (Laughter and applause).

The majority of these eye injuries that we have in the country can be taken care of by the country doctor. Where they cannot, there is not a country doctor in the State of Kentucky who is not glad to send the patient to the eye man for further treatment.

The main trouble, I want to re-emphasize, is that if these minor injuries, so-called, are treated properly to start with and infection prevented, we are all already members of the society that Dr. Pfingst has so nobly advocated, the Society for the Prevention of Blindness.

## THE JACKSON OPERATION FOR PRO-LAPSUS UTERI

MALCOM THOMPSON, M. D.

Louisville

The Jackson Operation for Prolapsus Uteri was devised by Dr. Jabez N. Jackson of Kansas City, Missouri, and a description of it appeared in *Surgery, Gynecology, and Obstetrics* for September, 1925. This operation is seldom described in the better known books of gynecology. Many well-posted surgeons have told me that they knew nothing of it. It is a modification of the Murphy operation, which in turn is derived from the Kocher operation. In the Murphy operation, the uterus is bisected, the mucosa removed and the two halves fastened into the abdominal wall. In the Kocher operation, the entire uterus is implanted in the abdominal wall.

Of late, the Kocher procedure has been receiving renewed popularity. The Jackson operation is so superior to it that I am prompted to give a brief description of it in the hope that it will be more widely known and more extensively used. In my own practice, I have used it three times with, what I think to be, excellent results. One of these cases was in a woman past 70; another, a very fat woman, aged 65; and the other in a young woman, aged 40. All of these had prolapsus of extreme degree, a procidentia in other words. Briefly the description of the technique is as follows:

A mid-line abdominal incision is made. Any necessary intra-abdominal work such as removal of the appendix is performed. The fundus of the uterus is grasped and pulled into or out of the wound. The peritoneum is closed around the uterus at the level of the internal os. No attention is paid to the tubes and ovaries other than to see that the ovaries are not pinched or included in any of the sutures. Beginning at the fundus and ending just above the internal os, a wedge of tissue with the base at the fundus is removed from the uterine body. This leaves a thin finger-like strip of uterine muscle on each side. The raw surfaces of each strip are loosely turned in with a continuous suture of fine catgut. A suitable place is selected to bring the right strip of uterine muscle through a stab wound in the right rectus muscle and fascia with as little tension as possible. To accomplish this the fat is dissected back from the anterior surface of the rectus fascia, the stab wound made, and the strip brought through. With the left strip of uterine muscle the same procedure is executed upon the left side. The mid-line in-

cision through the fascia is closed in the usual manner. The two strips are pulled up tautly but without undue tension and fastened to each other across the mid-line of the body. Each strip is loosely sutured to the fascia where it comes through to prevent herniation of any of the muscle. Lastly, the skin is closed either with sutures or clips.

Any accompanying rectocele or cervical erosion should be treated at the same time. The Jackson operation usually pulls the bladder so well upward and forward that it is often not necessary to do any operation upon the anterior vaginal wall.

As a general rule, it should not be performed upon women under 40 years of age. In addition to the three cases mentioned above, I performed the operation upon a young woman, aged 25. She had had two children and was suffering with complete prolapsus. Following the operation, she had excellent support, but each month at the time of her menstrual period, she would have considerable pain in the uterine remnants. The pain would last three or four days, and for the remaining part of each month, she would be perfectly comfortable.

The advantages of this operation are:

1. There is very little, if any opportunity for recurrence because of the great strength of the structures used for support. Excluding a severe post-operative infection which should not occur, recurrence is practically impossible.

2. There is no appreciable postoperative shock since most of the work is extraperitoneal and there is no opportunity for any hemorrhage. It can be readily performed with spinal anesthesia. Spinal anesthesia was used in two of my cases.

3. The patients are comfortable afterward and can indulge in strenuous activities. When properly done, there is no sensation of pull upon the anterior abdominal wall.

4. The mucosa of the uterus, which is the cancer bearing area, is excised and therefore removes the possibility of a fundal cancer developing in later years.

5. It is simple of execution and applicable to practically all cases of extreme degree.

6. In many of the patients, the uterus is large and heavy. A disadvantage of the Kocher operation is that this large uterus is retained while with the Jackson operation, the heavy portion is excised.

## DIAGNOSIS AND TREATMENT OF ACUTE OSTEOMYELITIS\*

S. C. SMITH, M. D.

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Osteomyelitis is an acute suppurative inflammation of the bone always due to infection of the bone marrow by pyogenic organisms, according to Babcock. This, Starr, of Toronto, denies, stating that the process almost invariably begins in the metaphysis. He says that the end-artery system and sluggish blood stream are factors which determine the lodgement of the infective emboli in the cancellous tissue just beneath the epiphyseal disc. This tiny focus may remain latent for a time, or may begin to spread with great rapidity. The infection can be tracked along the plane of the epiphysis to reach the subperiosteal space. From this point there is little to prevent rapid extension along the surface of the shaft, owing to the ease with which the periosteum strips in the young bone. Starr further states that, while the above is true, the cancellous tissue of the metaphysis seems to offer considerable opposition to the downward spread toward the medullary canal. In fact, the juxta-epiphyseal focus remains small and localized at a time when considerable stripping of the periosteum has taken place. It is not uncommon for the whole shaft to be stripped, with the medullary canal remaining uninvaded. The medullary canal proper is rarely invaded until a much later stage and is then often invaded not directly from the metaphysis, but from the subperiosteal space along the Haversian canals. This is a long-winded definition, but it gives the views of two schools of thought, each of which has many supporters here and abroad, and is necessary in the discussion of treatment.

**Diagnosis**—Compared to other surgical emergencies, acute osteomyelitis is very infrequent. This factor is responsible for many failures in diagnosis. Failure to make a complete physical examination is also responsible for many delayed diagnoses. If this disease is kept in mind, it is generally easy. It commonly occurs in children, boys being attacked in the ratio of from 2 to 1 to 20 to 1, the reports from various clinics varying very much as will be seen from these figures.

**Symptoms**—Pain, tenderness to deep pressure over the bone, usually at the metaphysis, and fever are the triad which form the picture. There are two main clinical groups: (1) Those in which the constitutional symptoms appear somewhat abruptly after a very

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short prodromal phase lasting two or three days. Under this group various clinical types are distinguished, according to the speed of progress and the severity of the symptoms, e. g., the rare fulminating type, the ordinary severe type, and the mild or more subacute type. (2) In the second we find those cases of every degree of severity with a definite prodromal phase lasting from one to four weeks. During this phase localizing signs appear which are of the greatest importance, but which are often overlooked. The likelihood of obtaining a definite history of a prodromal phase is lessened in the younger child. With a history of a recent bruise, skin sore, or other superficial sepsis, the early localizing signs take on added significance.

When the infection reaches the subperiosteal space, the symptoms of the prodromal phase become more insistent. A definite bony swelling is added to the metaphyseal tenderness, and occasionally there may be slight effusion in the neighboring joint. The symptoms of a general infection, mild or severe, accompany these local signs. When a clinical picture of this type is established, the diagnosis should rarely be in doubt, but, owing to the comparative infrequency of the disease, the syndrome is commonly regarded as indicative of some other acute infection, acute rheumatism usually carrying the blame. An acute synovitis with joint pain, joint tenderness, and muscular spasm is in marked contrast with the painful, tender, and thickened metaphysis, even though the latter is in close proximity to a joint. The incidence of acute monarticular rheumatism between the ages of 10 and 15 is so rare, if it ever occurs, that acute osteomyelitis must be given the pride of place in the clinical consciousness of the practitioner.

Early diagnosis of acute osteomyelitis of the deeper bones is not free from special difficulties which are not met with in dealing with long or pipe bones. The mortality in acute involvement of the pelvic bones is very high and the diagnosis very difficult. There are three suggestive clinical signs in involvement of the ilium which may assist in the diagnosis: (a) referred pain radiating down the thigh on the same side; (b) pelvic tenderness on rectal examination; (c) a sense of deep resistance between the trochanter and the crest of the ilium. The diagnosis of acute osteomyelitis in flat bones in other regions than the pelvis is less difficult because they are more accessible.

Acute osteomyelitis in the adult differs considerably from that observed in the growing child. The initial focus in the adult no longer occurs in well defined locations and

the incidence of the disease is greatly reduced. This difference would seem to emphasize the importance of vascular arrangement in the metaphysis as one of the principal determining factors in the development of osteomyelitis. Trauma is probably as common in the adult as in the young, but the frequency with which the disease develops decreases with ossification of the epiphysis.

Treatment—Certain principles should govern the treatment of this disease which I would state as follows: (1) the establishment of early and effective drainage with an effort to achieve early sterilization of the wound; (2) the operation must be so designed that further devascularization of both infected and uninfected bone is avoided, and that infection is not directly introduced into uninfected areas; (3) the systemic infection demands general and specific treatment.

Surgeons have devised three main types of drainage operations in the treatment of acute osteomyelitis. While all are agreed on the symptomatology and the necessity of early diagnosis and treatment, there is a wide divergence of opinion on the pathological involvement and the method of procedure. It is necessary, therefore, to discuss each method separately, giving the reasons brought forth for each particular type.

#### 1. SUBPERIOSTEAL AND METAPHYSEAL DRAINAGE

Platt in the Proceedings of the Royal Society of Medicine, June, 1928, says: "It is obvious that in the earlier stages drainage of the infected area alone implies (a) drainage of the cancellous tissue of the metaphysis, combined with (b) drainage of the subperiosteal space in the area of spread. Although a subperiosteal collection of pus develops only when the infection has escaped through a hiatus in the bone, drainage of the subperiosteal space alone is insufficient, for the hiatus is always minute and often hidden on the deeper aspect of the bone. In patients who are desperately ill with a large extra-periosteal and subperiosteal collection of pus, and especially in osteomyelitis of the flat bones, it is occasionally necessary to be content with extraosseous drainage alone as a temporary measure.

In the average case of acute osteomyelitis, however, it is sound practice to open freely into the metaphysis, either by multiple drill-holes, after the original technique of Starr, or by removal of a small trephine disc. All pus and infective debris should be sponged out lightly, but curettage of the interior should be avoided.

At this stage there cannot be the slightest justification for the common practice of extending the opening into the bone along the



shaft and exposing the medullary canal for a distance equivalent to the limits of the subperiosteal stripping—the gutter operation. We should unite to condemn this procedure and to explain its futility and dangers when the osteomyelitis is confined to the metaphysis.

Where the method of conservative drainage of the metaphysis has been consistently practiced in acute osteomyelitis, the results have been most convincing. When carried out at the stage at which the periosteal stripping is minimal, or where infection has not reached the surface, healing should be obtained without subsequent sequestration."

Babcock and others believe that acute osteomyelitis is *always* due to an acute pyogenic infection of the bone marrow and regard any technique which does not call for an opening into the medullary canal as inadequate. Babcock says, "If a case is seen early enough, i. e., within the first forty-eight hours, multiple drill holes may be made through the cortex and allow the pus to escape, and drainage of the marrow cavity may serve to abort the infection of the entire marrow and prevent necrosis or reduce it to a minimum. This was the late John B. Murphy's favorite way of treating the acute cases but it has fallen into disuse in favor of the removal of a large area of the cortex and opening wide the medullary cavity to allow real free drainage."

## II. DIAPHYSEAL DRAINAGE—THE GUTTER

The Toronto School gives this method a legitimate place in surgical technique when the medullary canal with its lining of cancellous bone is widely infected. This condition is found in neglected cases of primary metaphyseal infection and in those originating in the center of the shaft. Where the infective process has traveled extensively in the cancellous tissue of the shaft of a long bone, it is difficult to establish sufficient drainage without imperiling the viability of the shaft as a whole.

## III. SUBPERIOSTEAL RESECTION OF THE DIAPHYSIS

This operation immediately seems so radical that mere mention of it would be expected to bring forth vigorous opposition from those who pride themselves on their conservatism. If it is to be justified as a method of primary drainage, it must fulfill certain requirements. The arguments in its favor are: (a) that it allows a most effective drainage of the subperiosteal space; (b) that infected bone which would undergo massive sequestration at a later stage is removed at the outset, and thereby prolonged suppuration and secondary operations are avoided. In theory these arguments are sound. The objections are that it is too radical for simple drainage,

and that complete or partial failure of regeneration of the shaft with all its sequelae may be seen too often. In the earlier stages when the infection remains limited and periosteal stripping is absent or slight, diaphysectomy can have no justification; in the neglected case, where the shaft of the bone is literally riddled with infection, this operation is more rational, in theory, than the gutter operation. It would seem more suitable in the less acute types, where destruction of the periosteal tube, in part or as a whole, need not be feared. Successful operations in these cases are authentically reported.

Baer in Proceedings of Interstate Postgraduate Medical Assembly of North America, Detroit Session, 1929, writes of a "Viable Antiseptic in Chronic Osteomyelitis" which is the use of maggots in the diseased area. He fills the wound and, as scavengers of dead tissue, they cleanse and sterilize the wound, destroying dead tissue and bacteria as well, giving nature a free hand at reparation of the damage done by the disease. He reports a series of twenty-one cases, some from compound fractures, the remainder being ordinary chronic osteomyelitis. All of the series had suffered from four to ten years. All recovered according to the report in about six weeks. He claims to have received his inspiration from two soldiers who suffered severe compound fractures of the femur, and who were left on the battlefield in France for seven days without food, drink, or medical attention. Aside from starvation, they seemed to have benefitted from their stay in "No Man's Land." The wounds in both men were full of maggots and, on washing these out, he states that he found the most beautiful pink granulations one could imagine and a very low bacterial count. Both recovered in six weeks. Considering the inspiration, one wonders why he has not tested its efficiency in acute osteomyelitis. It would seem as applicable here as in the chronic form.

Orr of Lincoln, Nebraska, in The Journal of Bone and Joint Surgery, describes his method of treating acute osteomyelitis by drainage and rest. He, like Baer, received his inspiration from his war service in France. This was brought about by observation of wounds of all types which had daily or frequent dressings with application of antiseptics at each dressing, and by observation of other cases that had infrequent dressings without the use of antiseptics of any kind. He reports that the latter method resulted in much more rapid healing than the former.

The method of drainage Orr uses was described by Dr. E. H. Nichols in his article in Keene's Surgery in 1907. Nichols agrees with Starr and others about the limit of the

pathology in early cases, but thinks multiple drill holes are inadequate. He advocates making a larger opening and this, Orr believes, is the proper procedure. Nichols, however, failed to make any suggestion as to the subsequent care of the wound or the patients in acute cases.

After preparation of the wound, Orr paints the entire cavity with tincture of iodine and the entire wound is packed open and covered over with a sterile gauze-vaseline mass. This is not to be disturbed for subsequent dressings until healing is well established. Subsequent dressings are to be done in the same manner and at similar or longer intervals. Two to four dressings are usually sufficient to secure healing.

He recommends immobilization of the affected part in a well fitting plaster-of-Paris cast as the final step in his method of treatment. The cast must be applied in such a way that the affected part is comfortably fixed in correct position and free from muscle spasm. The wound area is well covered with plaster and is not disturbed except for definite and urgent signs of secondary trouble. The cast is removed in from three to six weeks, the wound dressed in the same manner, and a cast is applied as before. The same care should be used against infection and irritative motion as in the first dressing. Immobilization is continued until healing is complete.

Orr claims the following advantages for this method:

1. The patient is relieved at once.
2. Complications are avoided.
3. Convalescence is simplified.
4. Labor and materials are saved.
5. The patient makes an earlier recovery with a minimum of deformity and disability.

There are many advocates of this method of treatment, in part or as a whole, and many who reject most, if not all of it. Some of the main objections are as follows:

1. The foul odor arising from retained discharges in the dressings and cast.

2. Many believe it impossible of standardization, but that it is excellent in selected cases.

3. Others object to the long continued immobilization, especially in adults, which may result in troublesome fixation of joints.

Whatever method is used in the treatment of these cases, it is necessary to keep in mind the possibility of deformities of various types, and early steps must be taken to combat them. Appropriate and comfortable splints, with traction when needed, casts, or other appliances are necessary, not only to prevent deformities, but to obtain immobilization which prevents spread of infection. This, Orr's

method, properly applied, will do.

**Treatment of Systemic Infection**—R. B. Wade in discussing the treatment of acute osteomyelitis in children in the *Medical Journal of Australia*, says: "So far no treatment of the blood infection can be said to be of any real value. Serums and vaccines would seem to show no specific effect. Mercurochrome fails at any rate in the staphylococcus infections." My experience in two recent cases of blood stream infection with staphylococcus aureus leads me to believe that Wade is wrong. These cases were not acute osteomyelitis, but it would seem that there would be no difference so far as the systemic infection is concerned. These cases were treated after the method of Blesse of The Army Medical Corps. He uses a one per cent solution of mercurochrome in fifteen per cent glucose solution and injects 10 c. c. of this mixture into the vein every second day for five injections. After a ten-day rest, he repeats the course. He administers this in the treatment of various types of arthritis and reports excellent results, with little or no reaction. Each of my cases had a positive blood culture several days after parturition, and both were very sick. Twenty-four hours after the administration of a 10 c. c. dose of a one per cent solution, one case had a normal temperature. She felt better, her temperature remained normal, and she made a smooth recovery. The other case required three injections before the temperature dropped to normal, but her recovery from the third injection on was as uneventful as the first case. Neither case showed the slightest reaction. This is in marked contrast to the violent reactions seen after the administration of aqueous solutions. It is my opinion that a therapeutic test in acute osteomyelitis would be harmless and may prove to be of inestimable value. Systemic treatment, otherwise, would be the administration of supportive remedies.

#### SUMMARY

1. Early diagnosis, based on pain, tenderness to deep pressure over the bone, usually at the metaphysis, and fever, is of paramount importance.

2. After making the diagnosis, effective drainage with as little damage to surrounding structures as possible, without invading uninfected areas of bone, is imperative.

3. Comfortable appliances to minimize or prevent deformity.

4. A careful review of the literature will reveal the fact that no method has been devised that is free from criticism. A further study may result in improvement of the present method.

#### DISCUSSION

Orville Miller, Louisville: I want to agree



with Dr. Smith in what he said about osteomyelitis. I think that very little can be added. Of course, it is not necessary to say that it is very important that diagnosis be made at the earliest possible time, and that treatment be begun immediately. Drainage, of course, is instituted and should be as thorough as in the case of infection anywhere else in the body where there is any pus.

We all know that osteomyelitis is nothing more or less than an abscess inside the shaft of the bone. It is, as Dr. Smith said, very difficult sometimes to make a diagnosis immediately following the onset of the disease, especially in the cases of deep-seated bones, such as the femur, or one of the pelvic bones, or the spine, but as soon as osteomyelitis is suspected, I think that some operative treatment should be undertaken.

As to whether drainage is accomplished by drill holes, or whether large sections of the bone are taken out, as, for instance, transforming the shaft of the bone into one that is penetrated by drill holes, or whether we make a gutter out of it by taking out a portion of the shaft, I feel that we all do well if we remember what Dr. William Dugan used to say to us when we were students in school. In lecturing on osteomyelitis, he said that all one needs in treating osteomyelitis is a clear conscience and a keen piece of steel.

In other words, afford a complete drainage of the infected area, leaving the wound wide open to allow free escape of pus.

Various methods have been mentioned here, as for instance, the Orr method, the Baer method, and so on. All of them are, of course, very good methods, and one wouldn't err, I think, in following any of them.

I have had very little experience as far as Baer's method is concerned, but there have been two cases that I have seen that were infested with maggots and I can testify that those cases did heal rapidly. Orr's method is certainly a very splendid method and the easiest, as Dr. Smith has indicated. The only objection to it is the foul odor that is soon present.

I think the outstanding thing, aside from fixation, that Orr has in his method is the painting of the cavity with iodine. I believe that after the cavity is thoroughly cleaned out and painted with iodine the patient will make a more rapid recovery than if the iodine isn't put into the wound. Iodine is said to be a fixing agent, and so, by its action on the bacteria and the cells of the tissue you prevent growth of bacteria very rapidly. At the same time, I am of the belief that it has something to do with the prevention of embolism, which sometimes is a complication of an operation for osteomyelitis.

I certainly enjoyed this paper very much, and I think it is very timely and very splendid.

**Barnett Owen, Louisville:** Dr. Smith asked

me some time ago to say something about his paper. It is a very excellent paper and a very timely one, a subject on which I think more should be written for the reason that acute osteomyelitis is a very distressing disease. I know of no disease in which prompt action is indicated to a stronger degree than it is in acute osteomyelitis, because those individuals become ill very suddenly with a sudden onset of high temperature and intense localized pain which is increased by local pressure, high leukocyte count, and a marked polymorphonuclear count, with a negative X-ray finding.

Some of my X-ray friends rather disagree with me on this particular point, but I am still of the same opinion that if you get the cases early and they are really acute osteomyelitis before any bone destruction has taken place, the X-ray is negative. That is one point that has been most misleading to many men. Because the X-ray was negative the bone was not thought to be involved.

On the other hand, if we will institute thorough and immediate drainage only, and stop there, I believe we will do the patient the most good and prevent the greatest amount of bone destruction. They are very ill patients, and do not stand prolonged operations, which are not necessary. It is only necessary to drain the pus that is under pressure in the bone primarily. Of course, we know those cases sometimes go on in spite of that fact, and become chronic, but there is very much less bone destruction if early drainage is instituted.

We have been using Orr's method of treatment, which consists of thorough drainage, thorough removal of all diseased bone, thorough smoothing up of the bone, not allowing any rough edges to remain, swabbing the cavity with tincture of iodine, followed by alcohol, packing it with sterile vasoline gauze up to and including the skin wound, and a large pad of vasoline gauze being placed over the entire wound. In fact, it is sealed completely.

The drainage of pus comes from around this packing. As the granulations take place from the bottom, this packing that is not put in too tightly although snugly, is gradually pushed to the surface.

We do not, however, carry out this treatment to the letter, in that we cut a large fenestra over the wound and remove the superficial dressings, in two or three days, and continue to remove the superficial dressings, not touching in any way the vasoline gauze that covers the entire wound, because we feel that it is a very disagreeable situation both for the patient and those surrounding the patient. They are liable to become infested with maggots, as Dr. Baer has said.

I heard his paper this last summer in Boston, and he gave a very graphic illustration, as Dr. Baer is capable of doing, with his moving pic-





Blesse's investigations have proven that so far as is known, after a large series of cases were treated, no damage has resulted to the kidney when mercurochrome has been used intravenously with glucose solution.

In his service at the Army and Navy Hospital at Hot Springs, he used 10 cc. every second day for five days. He let the patient rest ten days and then he repeated the course. The only reaction that he ever had was that a few of them complained, shortly after the administration, of a slight constriction in the chest. Others would develop diarrhea from the action of the mercurochrome toward the end of the second course. However, daily examination of the urine showed no kidney involvement whatever. So I think it is really safe to use it intravenously, and in these cases that I had, it certainly was efficacious.

I have a friend who had another similar type, a blood-stream infection, that responded very promptly to the administration of only one dose of 1 per cent solution in 15 per cent glucose.

### OSTEOGENESIS IMPERFECTA, FRAGILITAS OSSIUM OR BRITTLE BONES. CASE REPORT\*

RICHARD T. HUDSON, M. D.

Louisville.

Osteogenesis imperfecta is a congenital disease of bone formation. It was first described by Vrolik in 1849, and a number of cases have been reported since that time, particularly in Europe.

Little is known of the etiology, but heredity is thought to play an important part by many observers. The pathology lies in the deficient periosteal formation. Instead of a continuous layer of normal bone, the periosteum forms separate plates of non-laminated dense bone, in which there are oval bone cells and no Haversian canals. In place of these there are marrow spaces.

There are three very similar conditions from which the disease must be differentiated.

1. Rickets. In rickets there is periosteal proliferation, the ends of the diaphyses are ragged and the epiphyseal body is irregular, cloudy or absent.

2. Osteomalacia. Osteomalacia is a disease of formed bone and rarely attacks children. There is absorption of lime salts.

3. Syphilis. Wassermann reaction should differentiate this disease.

Prognosis: Prognosis is always very poor. Tendency to fracture is less as age advances.

Treatment: Treatment is protective. Drugs are of little avail. Massage, heliotherapy and general constitutional treatment may be of

value.

### CASE REPORT

G. R., aged five years, was brought to the clinic of the Kentucky Crippled Children's Commission at Owensboro, on August 5th 1930. His family history is essentially negative. He was a full term baby, weighing seven pounds at birth. His bones were grossly deformed at birth and the deformities have tended to increase with age.

He was breast fed for two years, and since then has had a liberal diet, including an abundance of milk, orange juice and cod liver oil. He has always had a tendency to be constipated. He talked at normal age but has never sat nor stood alone. His mentality is apparently above normal, for a child of five years.

Physical examination reveals an undernourished child with an apparently abnormally large head, protruding abdomen and grotesque deformities of the extremities. His sclera are of a bluish hue, a characteristic of the disease. Teeth are very poor. He has double inguinal herniae. Reflexes are normal.

### LABORATORY EXAMINATION

1. Urine .....negative
2. Blood: Erythrocytes .....5,750,000  
Leukocytes .....12,250  
Polymorphonuclears .....48%  
Lymphocytes .....52%  
Hemoglobin .....90%
3. Blood calcium 13 mg. per 100 cc.
4. Blood Wassermann, twice negative.

### DISCUSSION

Harry Goldberg: Dr. Hudson has presented a very interesting and rare case. Osteogenesis imperfecta, as the doctor has told us, is a congenital condition in which, from lack of formative power, the bones do not develop properly. There is a deficiency in periosteal ossification and any or all the bones of the body may be involved. The etiology of the disease is unknown, although there seems to be a strong hereditary element. The most essential feature is multiple fracture, particularly of the long bones, which has occurred in the case reported.

The prognosis in these cases is unfavorable. So far as my experience goes, most of these patients die very young. As Dr. Hudson stated, little benefit is to be expected from any type of treatment. Many agents have been suggested and tried, but have proved of no value. Sunlight and constitutional treatment may have some effect.

The fractures, which are spontaneous and not very painful, show no particular delayed unions. These fractures are treated along general lines.

Dr. James W. Bruce: I did not have the pleasure of hearing Dr. Hudson's report. This little patient has been in the children's free hospital

\*Read before the Jefferson County Medical Society,



for some time. He has remarkable intelligence, in fact, he knows more than any five-year-old child I ever saw. He can count to fifteen; he knows how many pennies there are in a nickel and dime, etc.

The majority of these patients die shortly after birth. The bones are so soft and fragile that fractures are inevitable. I believe this child sustained one fracture while he was being examined.

As to the differential diagnosis: When we first saw this patient we thought it was a case of rickets, but roentgen-ray examination showed no evidence of rickets. Another disease suspected was osteomalacia, but in osteomalacia the bones bend but rarely break. This boy has several fractures. Another thing suggested was chondroplasia, but there is little resemblance to that disease.

### NEVUS PIGMENTOSUS PILARIS\*

WILLIAM J. YOUNG, M. D., F. A. C. P.

Louisville.

Nevus pigmentosus is known by many other names. Among the laity the lesion is called birth-mark or mother's mark. It is a congenital, usually circumscribed, hyperpigmentation of the skin, often accompanied by a growth of coarse hair, and hypertrophy of the connective and fatty tissues.

When the growth consists of pigment only, and is not elevated above the skin surface, it is called nevus spilus. If, in addition to pigment, there is hypertrophy of connective tissue, and the growth is elevated and uneven, the name nevus verrucosus is applied. When the lesion is soft and contains fatty tissue, it is known as nevus lipomatodes. When the hair grows from either type, then one speaks of nevus pilosus.

In color the lesion may vary from light to dark brown or black, and in size from a split pea to an area sufficiently large to cover the entire back. The lesion occurs most often on the face, neck, and back, although it may be noted anywhere on the cutaneous surface. The lesions may be unilateral or bilateral and symmetrical. The hair growth is coarse and darker than that of the head.

The important fact must be borne in mind that all types of nevi have a tendency to become malignant in advanced life. They are permanent growths, that is they seldom disappear spontaneously. They give rise to no subjective symptoms.

Very little is known concerning the etiology of the various types of nevi. The theory of nerve influence does not satisfactorily explain the development of these lesions, nor does any

other hypothesis thus far advanced. For the present we must simply regard them as anomalies.

The diagnosis of nevus pigmentosus pilaris entails no difficulty. The skin discoloration, connective tissue hypertrophy, and growth of hair, are characteristic. There should be no confusion between hypertrichosis and nevus pigmentosus pilaris, and the same may be said of lentigo. (Abstracted from Diseases of the Skin: Jackson).

Many methods of treating nevi have been recommended and tried, surgery, acids, pastes, caustics, etc. More recently radium and the roentgen-ray have been extensively employed with better results than heretofore obtained by other methods. Small lesions, pigmented or otherwise, are most satisfactorily treated by radium application. In the majority of instances only an insignificant, pliable scar remains at the involved site. Plastic surgery may be successful in lesions not larger than a silver dollar. Where the discoloration involves areas of greater extent, as in the case to be herein recorded, I believe no treatment should be instituted.

### CASE REPORT

The patient is a female child, aged ten years, who was referred to the skin clinic at the Louisville City Hospital a few weeks ago. I had hoped to have her here tonight, but through some misunderstanding she failed to appear. She has a nevus pigmentosus pilaris involving the side of the nose and four-fifths of the left side of the face, from just above



\*Read before the Louisville Medico Chirurgical Society.



the median line of the forehead downward to within one-half inch of the lower angle of the jaw. Both lower and upper eyelids are involved. Of course, the child is terribly disfigured. If the lesion had occurred on a covered part of the body the condition would be less serious. Practically all the pigmented area is covered by a growth of coarse hair.

The lesion was present at birth, but has gradually increased in size, in pigmentation, in hair growth, and connective tissue formation. We know that this type of nevus may be small in the beginning, and then extend from its original site to adjacent tissues. Later the pigmented area may become elevated, and aside from the disfigurement and unsightly appearance of the lesion, we always fear that it may undergo malignant change.

As regards treatment in this case: There is little to be considered except plastic surgery. In these extensive nevi the use of radium is generally unsatisfactory. It is difficult to remove the areas of pigmentation with radium without producing such devitalization of the tissues as would predispose them to later cancerous development. In this case, the nose, entire side of the face and both eyelids being involved, I doubt very much whether anything can be accomplished by plastic surgery.

I am particularly anxious to hear from some of the eye specialists as to whether plastic work would be indicated about the eyelids. This patient was referred from the eye clinic to the skin clinic at the City Hospital. I also want to ask the surgeons whether any plastic work can be done to reduce or remove the disfigurement. I am quite sure that radium is contraindicated in these cases where the lesion is larger than a silver dollar. We know that by the application of radium we can cause epilation, we can reduce the pigmentation to some extent, but practically always the best we can do is to produce a mottled result which is not satisfactory to the patient or the parents.

The main reasons for presenting this case are:

(1) To show to what extent these nevi may extend in time.

(2) To call attention to the fact most all of the nevus pigmentosus pilaris start as a small lesion at which time it is possible to remove it without a great deal of disfigurement.

#### DISCUSSION

**J. Garland Sherrill:** Dr. Young very kindly offered me this patient for operation, but I declined to undertake it. A number of patients with this type of nevus have come under my observation; in the most of them one side of the face was involved. In the case Dr. Young has reported the pigmentation extends beyond the

midline. These nevi are congenital and usually consist of dilated blood vessels. There is considerable increase in the connective tissue and thickening of the epithelial tissue with many hair follicles and hairs on the surface. They are unsightly, but not painful and not troublesome otherwise. I recall having seen, when a young man, a most beautiful woman, provided one saw only one side of her face; the other side was very unsightly because of a pigmented nevus similar to the one described by Dr. Young. This woman married, was perfectly healthy and lived a normal life. No treatment was instituted for the skin lesion. In my opinion very little can be offered these patients where the nevus is as extensive as this.

A number of years ago Dr. Wyeth proposed the injection of boiling water in large nevi. I have used the method with some apparent benefit. In large pigmented nevi, excision, plastic surgery or any other procedure which contemplates removal of the discolored area, is likely to be unsuccessful. If the lesion is left undisturbed I do not believe the patient is in any real danger of malignancy, although it is true that rarely pigmented moles do become malignant. If they are small and can be excised or treated with radium I think it is perfectly feasible to do so.

**L. Wallace Frank:** I disagree with Dr. Sherrill in regard to treatment in the case reported by Dr. Young. Personally I think the child should be operated on. I am not saying that I am capable of performing the operation, but it can be done. A pedicled flap could be taken from the arm, according to the method of Blair. The entire flap is first elevated and then turned around and a portion used to repair the eyelids. This patient happens to be a girl, and I think she should be given a chance by the application of plastic surgery rather than to allow her to go through life with one half the face black and covered with hair. So far as the operative technique is concerned there is no question about the ultimate result. The operation can be done without appreciable scar except where the new skin joins the old. Of course, the newly formed eyelids may not be quite as symmetrical as the old lids, but the outcome will be satisfactory.

**William J. Young (in closing):** As to the advisability of attempting plastic work in the case reported: I do not see how it would be possible to form a new eyelid, inasmuch as the pigmentation extends well into the area of the eyelashes. It is true, as Dr. Frank has said, that a pedicled flap might be obtained from the arm and utilized in the plastic procedure, but this would entail an enormous amount of work and infinite patience on the part of the surgeon, and the child would have to be placed in a plaster cast or other suitable device to maintain the pedicle in position. Considering the length of time over

which treatment would have to be extended, the large number of operations that would have to be performed, the suffering the patient would have to endure in the meantime, and the uncertainty of the ultimate result, I think plastic operation would hardly be justified in this case.

There is another method of treatment to be considered and which might produce some benefit; that is the application of carbon dioxide snow. This would probably have a better effect than radium. The principal objection to carbon dioxide snow in cases such as the one reported is that it would have little effect on the hairy portions of the lesion. In port wine stain, which is merely dilatation of the arterioles producing a smooth red area on the skin, we use radium, unless the lesion is larger than a silver dollar, with excellent results. Such lesions are also treated with carbon dioxide snow, but radium is generally preferred. In *venus vascularis* there is nothing so good as the application of radium, and early treatment is important. Elevated lesions the size of a match head or even larger disappear very rapidly under the use of radium.

I do not believe boiling water would have any beneficial effect in the case reported, nor will radium do very much good beyond destroying the hair follicles and thus getting rid of the unsightly hairy condition, with the added risk of debilitating the skin and possibly causing malignant change later. Inasmuch as the one thing we fear in these pigmented nevi is subsequent malignancy, I believe it would be unwise to further debilitate the skin.

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**Treatment of Carcinoma of Breast with Radium.**—Keynes feels that the day has now passed when all radiologic treatment was kept strictly within the province of the radiologist. Interstitial radium treatment (as used by him) is a surgical procedure, though it requires knowledge of the properties and dangers of radium for its successful use. Further than this, it often needs to be combined with purely surgical treatment, and Keynes makes no claim that radium has superseded surgery. He believes, however, that radium is the treatment of choice as a first stage in the majority of patients. For those with "inoperable" tumors, it is the only possible treatment. For those with the earliest growths it is the preferable treatment, because the patient is restored to normal. For those with advanced but still operable tumors, no known form of treatment can be relied on to save the patient's life, because in most cases the disease has already passed beyond the local—that is, the curable—stage. On the whole there is less suffering for the patient with primary radium treatment than with operation. He reports on 130 patients with primary carcinoma of the breast treated with radium.

## MODERN PROSTATECTOMY\*

CLEM HILL, B. S., M. D.

Louisville.

There are few fields of surgery which have made such rapid advances in the last few years as surgery of the prostate gland. No doubt this is due to an age of specialization in which surgeons have devoted their time and interest in perfecting one branch of surgery. To the Urologist must be given the greatest amount of credit for lowering the mortality rate in prostatectomies and the banishing of the idea among the laity and some physicians that removal of the prostate is most often fatal.

The field of general surgery is so broad that it is no longer possible for a surgeon to remain proficient in all its branches. In order that the patient may profit by the increasing scope of surgical knowledge, there must be a division of work and specialization to a certain degree, if progress in surgery is to increase.

Dever has shown that the average mortality rate following prostatectomy by the inexperienced or occasional operator in this field of surgery is between 20% and 30%, while the average mortality rate following operation by Urological surgeons is between 3% and 6%. Operation upon this organ will always remain as somewhat of a hazard due largely to the fact that in most instances the patients are advanced in years and any surgical procedure becomes a grave risk. Recent advances in our knowledge of anesthesia, improvement in technique and the general adoption of drainage as a preliminary to operation by all surgeons have reduced the mortality to a minimum.

It is my desire to bring before your attention the more recent developments in prostatic surgery; therefore, we still discuss only briefly the routine principles such as examination and drainage with which I am sure you are all familiar.

As a back ground for this discussion I will give some statistics which have been collected from 31 consecutive cases upon whom I have operated during the last two years for adenomatous hypertrophy of the prostate gland. The most recent methods were used and all cases have a complete follow up history.

A modification of Young's perineal operation was used upon all 31 cases with a mortality rate of 3.1 per cent. The cases were of the usual type and the series only includes adenomatous enlargements. The mortality

\*Read before the Kentucky Medical Association, Sept. 16, 1930, Bowling Green.



Diagnosis	No. of cases	Average age	Operation	Type of anesthesia	Post Operative Condition				Complications.	Average length of post operative stay in hospital	Results			Mortality
					good	medium	poor	shock			cured	improved	dead	
Adenomatous Hypertrophy of Prostate Gland	31	63.2	Perineal Prostatectomy	sacral and para sacral	29	2	0	0	Hemorrhage 2	20.5 days	30		1	3.1 %

Figure 1. Operative Data

rate is about the average found in most Urological Clinics, but considerably lower than that found in most hospitals not devoting special attention to this kind of work.

EMBRYOLOGY AND ANATOMY

Investigation of prostate embryology and anatomy has cleared up many conflicting viewpoints and thereby aided us in our surgical approach. The first appearance of the prostate is found in three months old male fetus. Its tubules begin to develop from five different foci—from the posterior urethral wall. In the later development of the gland these foci become prostatic lobes and retain their independence from one another, but the only division which is ordinarily of surgical importance is the thorough separation of the posterior lobe from the remaining portions. This separation is marked by a strand of connective tissue which divides the posterior lobe from the middle and lateral lobes and which contains attached to its anterior surface the two ejaculatory ducts, as they, surrounded by a firm envelope, course obliquely through the gland. In adenomatous hypertrophy of the prostate, for some unknown reason, the posterior lobe fails to take part in the enlargement. Therefore, it becomes compressed between the enlarged adenomatous portion consisting of middle, two lateral and rarely a persistent anterior lobe, then, undergoes pressure atrophy. The posterior surface of the prostate and seminal vesicles is covered by the glistening fascia described by Denonvillier. This comes from a pinched off portion of peritoneum which covers the prostate in fetal life. Carcinoma often has its primary focus in the posterior lobe and occurs in 10% of the enlarged glands.

EXAMINATION OF THE PATIENT

The systematic examination of a patient who presents himself is always important. After having completed his general examination including a urinalysis, the surgeon then undertakes the special examination. This consists of two parts—such as examination by instrumentation and taking careful history, with a thorough physical examination with special reference to the genito-urinary organs. This includes, penis, meatus,

scrotal contents and vasa deferens.

The rectal examination is probably the most valuable from a non-instrumental standpoint, in that it gives us valuable information concerning the type of gland we have to deal with. One notes whether the anal sphincter is relaxed or has a good muscular tone in enabling us to pick up many cases of suspected tubercular bladder which may present all the signs or symptoms of prostatic obstruction with or without enlargement of the gland. Palpation of the prostate gland gives the experienced examiner a great deal of information. One first notes the size, and what is more important, the consistency. Large fibroid elastic prostates are usually found to be the adenomatous type of hypertrophy, while those of board like consistency whether large or small, regular or irregular, indicate carcinoma to the trained observer.

Tuberculosis of the prostate is usually accompanied by tuberculosis of the seminal vesicles or epididymes and is rarely present alone. A large boggy prostate in a young man who shows no evidence of an acute or sub-acute infection is always suspicious of sarcoma.

The examiner now having determined the existence of an enlargement of the prostate, he then proceeds to find out whether there is any residual urine present, the obstructing mass should be removed after a suitable preliminary drainage. If there is very little residual urine the patient should be cystoscoped in order to learn the exact nature of the obstruction at the vesicle orifice, and what to expect in the future development of the case.

The presence of residual urine always indicates a cystoscopic examination if it can be done without too much pain. Otherwise, an X-ray and cystogram will give valuable information as to the size of the intra-vesical intrusion, the presence of stone, tumor or diverticulum.

It is also, wise to investigate the functional capacity of the urinary organs. This is accomplished by examination of a 24-hour specimen and an intra-muscular phenol-sulphone-phthalein with readings every 30 minutes, for

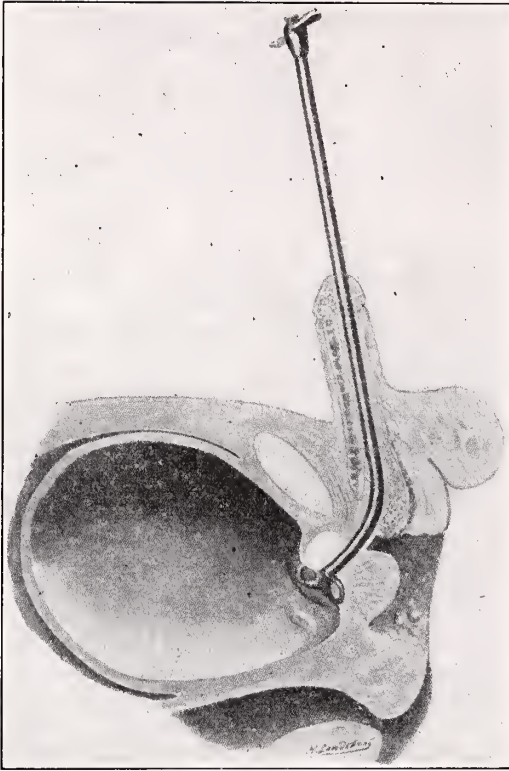


Figure 2. Crowell Retractor. This picture shows the Crowell retractor in position, forcing the prostate into the perineal wound. Its advantage is that it passes through out the entire length of the ureter and does not cause pain by pressing on the symphysis pubis.

two and half hours and at the same time a blood chemical examination.

#### METABOLIC DISTURBANCE

In the early days, we were inclined to think of prostatic obstruction as a symptomatic disease causing painful urinary disturbances and destruction of the kidney. The metabolic phase was gazed upon in deep mystery, but we are now beginning to realize that urinary obstruction is a disease of serious metabolic disturbance. It was early recognized that those patients who were catheterized over a long period thus relieving pressure on the kidney were in better condition for operation when it was finally performed. Observation of the improvement in the renal power of patients by drainage was placed on a scientific basis by development of accurate methods of measuring kidney efficiency. Geraghty and Roundtree greatly stimulated this work by the introduction of phenol-sulphone-phthalein. Mosenthal's concentration test is a newer and important addition to this test. Perfection of methods of estimating various retention products in the blood stream of persons suffering from damaged kidneys has greatly aided us in our investigation of the patient's metabolism. By using the

phenol-sulphone-phthalein test and by estimating the retention of urea nitrogen in the blood one may get a true picture of the extent to which the kidneys are performing their function as eliminative organs. As a result of this metabolic disturbance, we find not only the renal function diminished but the cardio vascular system damaged in an endeavor to restore the renal function. Cecil thinks that this condition of exhaustion extends to other organs of the body and it is not improbable that these exhaustions and derangements of other systems will be determined scientifically in the future. Many clinics have adopted measures for having a routine examination of the heart and nervous system by competent men doing this type of work.

A great number of cases present heart murmur and arterio-sclerosis, but these conditions are quite obvious and easily recognized. It is the obscure damage to the cardio vascular control mechanism in its endeavor to produce normal kidney efficiency that gives us cause for more efficient study of these cases. This condition manifests itself in the sudden collapse which may take place a short time following prostatectomy. The introduction of a salt solution into the vein usually restores the patient due to increasing the blood pressure. We know that the prostates cannot stand the same degree of hemorrhage that other surgical cases stand with safety. The picture is not one of hemorrhage but of collapse. The pulse may be of good volume and entirely normal, then suddenly disappears. It is thought that these manifestations are not due to kidney damage but to remote effects of urinary obstruction on the cardio vascular mechanism. To prevent these unfortunate occurrences it has become a routine procedure to have each patient undergo a thorough examination of his heart including electro cardiographic readings. We have recently endeavored to strengthen the heart tone of each patient by administering tonic doses of digitalis before and after operation. These precautions have never been followed by collapse in our experience. Intravenous infusion of 500 to 1000 cc saline daily has a definite action in strengthening the heart tone and increasing the blood pressure. Although we use this procedure primarily to aid the kidneys in eliminating toxic properties, it nevertheless has a definite value in stimulating the cardio-vascular control mechanism. In many cases we see evidences of damaged nervous system. The constant discomfort and pain not to mention loss of sleep at night from frequent micturition is enough to cause despondency and mental derangements. Fortunately most of these symptoms disappear when proper drainage is established.



Only two of our cases showed a normal blood urea retention on admission. The highest was 64 mg per 100 cc., and the lowest 10; 17 mg. being considered within normal limits. At the time of operation all cases showed a normal blood urea retention.

#### PRELIMINARY TREATMENT

Unfortunately, most patients suffering from prostatic obstruction do not reach the Urologist until their symptoms have progressed to an unbearable state. This makes their case more serious. About 50% of cases have complete retention when presented and the average duration of symptoms is five years. In order to correct this existing condition it will be necessary to educate the laity and to call for a quicker recognition on the part of the practitioners.

Preliminary treatment is carried out for the purpose of restoring the renal function thereby eliminating the strain on the cardiovascular mechanism and other organic systems. This is accomplished by drainage of the bladder and other palliative measures such as intravenous infusion of saline, stimulation of the heart if necessary and rest. All cases should have some preliminary treatment no matter how good the risk seems. It is uniformly agreed that drainage of the bladder is the controlling principle in the successful management of prostatic obstruction. This drainage may be one of two forms.

(1) By means of the catheter through the urethra.

(2) Supra pubic drainage under local anesthesia.

The two stage operation is indicated in certain cases, but it is questionable whether it deserves routine adoption. Some surgeons prefer this method because the catheter is irritative and annoying to the patient. It has been my experience that the two stage method is the safest in a majority of cases, and has many advantages in its favor, especially since the introduction of a new technique for doing a supra pubic cystotomy. This newer method makes the operation a minor procedure. Under local anesthesia a high transverse incision is made and the vault of the bladder is exposed by dissecting over the eurachus and reflecting the peritoneum off the bladder in the midline. In this way the space of Retzius isn't entered, thus eliminating that source of infection. This procedure, also, does away with the pain and difficulty that the surgeon usually experienced in the old method while reflecting the peritoneum from the base of the bladder.

Many Urologists are grouping their patients into three classes and carry out their preliminary treatment according to this classification. For matters of discussion let us call the first group good risks, a second



Figure 3. Dissection of Perineum. The central tendon is incised behind the insertion of the transverse perineal muscles and allows them to be retracted ventrally with the bulb, following which the recto-urethralis muscle is seen and incised, exposing the apex of the prostate. The finger is left in the rectum as an aid to dissection.

Courtesy of Dr. O. S. Lowsley.

group of fair risks, and a third group of poor risks.

In this first group, we might include those cases that come early to the surgeon and which have only a small amount of residual urine and which shows a nearly normal blood chemistry. These cases usually have little or no infection in the bladder and often show no cardio-vascular disturbance. We would suggest that catheter drainage is satisfactory for this type of case.

Under the second group would come those cases with a moderate or marked residual and showing some metabolic disturbance. The bladder is usually infected. In my opinion the two stage operation is indicated in this type. Catheterization is irritative and annoying to the already very sick patient, and we find that even under the most careful precautions the patient will be infected with either an ordinary cystitis or a secondary exacerbation of an already existing infection. Absorption alone is considerable about the catheter. Cystotomy eliminates the irritation to the urethra and offers a better means of communicating with the direct contact of the mucous membrane with the air. During the past two years it has been our custom to give daily intravenous infusions of 500 to 1000 cc of normal saline. Wonderful results have been noted during that time in reducing the toxic properties of the blood and we feel that these results are due to this procedure. The administration of digitalis in tonic doses before and after operation has already been discussed.

In the third group we will include the badly

neglected cases which you will be surprised to know make up a very large percentage of patients that we see. Most of these have complete retention or a very serious residual at least and usually give a history of long standing symptoms and inadequate treatment. Here the most expert care is necessary to bring them through a successful operation. Drainage is accomplished first by gradual decompression. Sudden relief of pressure on the kidneys often produces uremia and acute pyelonephritis at the same time. After the decompression has been carried out supra-pubic drainage is established. They should be out of bed as soon as possible and then the preliminary treatment follows along the same plan as outlined for the second group. Many of these cases have such little resistance even after a few weeks of drainage that they will withstand their final operation better if allowed to go home for two or three months. Indeed, I have seen almost hopeless individuals come back for their prostatectomy after a few months at home, undergo the operation and recover without the slightest difficulty.

It is only necessary to briefly mention the laboratory routine for these cases. Methods have not changed greatly in the last few years. Studies of blood retention indicate the degree of kidney elimination. The phenol-sulphonphthalein test is valuable in that it checks against the blood chemistry examination. No patient should be operated upon regardless of his tests unless he looks absolutely fit to the surgeon.

Our statistics show the average age to be 63.2, the oldest 81 and the youngest 46. Although there is no accurate method of estimating the duration of symptoms, the average seems to be between two and five years. Complete retention occurred in 62% of the cases and partial in 38%. Twenty-eight per cent were in good general condition, 32% fair and 40% poor.

The return in two hours from the intra-muscular injection of phenol-sulphonphthalein ranged from 80%, the highest to 7% for the lowest. No patient was operated upon until the phthalein test reached 40% or better. Every case was drained supra pubically, the drainage period varying from 11 days to 90 days.

#### ANESTHESIA

The discovery of anesthesia and application of the principle laid down by Lord Lister, placed this branch within the limits of surgical aid along the usual lines. It was soon learned that the aged men, most of whom suffered from deficiency in renal power, tolerated ether poorly, and were prone to the development of post-operative pneumonia from any inhalation method of anesthesia; therefore, various efforts were instituted to avoid

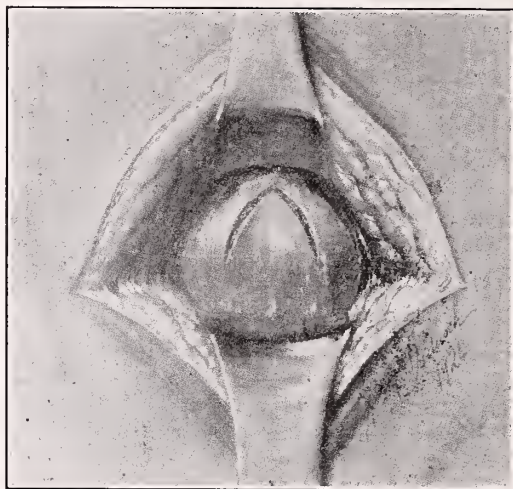


Figure 4. Incision of Capsules. The bulb and muscular attachments of the prostate have been retracted laterally and posteriorly. An inverted V incision is then made through the fascia of Denonvillier, capsule of the prostate and the posterior and middle lobes of the prostate into the prostatic urethra.

the frightful mortality that resulted from this operation, under ether. Clute Sterling and many others have praised the advantages of intra-spinal anesthesia. However, until such measures can be devised to maintain the blood pressure during intra-spinal anesthesia it may be hardly considered the safest method. Sacral and parasacral anesthesia popularized in this country by Labat, Meeker, and Lowsley possess all the advantages of intra-spinal anesthesia and none of the disadvantages of general anesthesia, and is perfectly safe. At the Brady Urological Institute in New York practically every prostatic operation was conducted under this type of anesthesia, with but few failures. The administration of sacral and para sacral anesthesia has been thoroughly described many times and I feel that it is hardly necessary to give the technique here. The method is easily and almost painlessly applied and has been used on many cases with practically no accidents. We find it possible to get perfect anesthesia in 95% of the cases, the remaining 5% get along with slight reinforcement, usually a few drops of ether.

Lowsley thinks there is about 1-10 the amount of bleeding compared to the same operation under general anesthesia. The anesthesia persists for about six hours, which prevents post operative pain to a certain degree. Thus, the main elements which go to make surgical shock are eliminated. The patient is allowed to drink water throughout the operation, preventing dehydration which is so disastrous to this type of case.

Sacral and para sacral anesthesia was used on each of our thirty-one cases. Every anesthesia was entirely successful from the standpoint of pain. It might be added that we give



$\frac{1}{4}$  grain of morphine before administering the anesthesia to allay the anxiety of the patient. Four of our cases showed some signs of novocaine toxemia manifested by rapid or weak pulse. This condition was remedied by the administration of caffeine citrate hypodermically. I would like to stress the point that no reinforcement with ether or gas was needed in any of these cases in this series. During my experience with a large number of cases upon which this type of anesthesia was given I have never seen a fatality as a result of its use. This type of anesthesia is particularly suitable to surgery in the perineal region; therefore one would expect better results for perineal rather than supra pubic prostatectomy.

#### OPERATION

The route of choice is now the most important factor, but certainly there are advantages to be derived from removing the prostate by the perineal route.

The operation which we prefer is a modification of Young's perineal operation. This newer method eliminates traumatism to the external sphincter, which evidently caused a certain amount of incontinence after the operation. In our operation the external sphincter is entirely out of the field of action, and is rarely ever seen, therefore eliminating the possibility of incontinence except through errors of technique. Let me explain more fully my preference for the perineal route. It is a matter of statistics that supra pubic prostatectomy has produced a greater mortality than perineal operation. Reasons for these results are dependent drainage, lack of disturbance of the peritoneum and lack of post operative distention. Cecil thinks there is a localized immunity in the region through which the perineal operation is done. Certainly, this region is relatively immune to infection and it is equally as true that the supra pubic region is not immune. There are numerous other features in favor of the perineal route. First, as regards hemorrhage. It is a complication rarely met with. Most of the dissection is done bluntly but if there should happen to be a bleeding point you are operating under perfect vision and can tie the vessel immediately. Post operative hemorrhage which in the past has caused so many deaths is a complication never met with when the operation is properly performed.

As regards mortality. Under present methods of preliminary treatment, I do not feel there is a great degree of difference between the two operations. I only insist that the perineal method appears to me to be a more correct surgical procedure than the supra pubic, and I feel more certain as to the outcome in the perineal cases.

Dr. Crowell greatly aided prostatic surgery by the introduction of his tractor. Its advantages over Young's tractor is that it is passed into the bladder through the entire length of the urethra. Its blades are then opened. After making a semilunar incision through the skin by sharp and blunt dissection. The central tendon of the perineal muscles are then incised behind the point where the lateral perineal muscles join it. This allows the central structures to be pulled upward with the bulb and lateral perineal muscles. A Kocher clamp is fixed to the posterior part of the central tendon and held in the left hand for the purpose of traction. The index finger of the left hand is inserted into the rectum and the hand covered with a towel. The dissection is carried deeper and the important reflection called the rectourethralis, attaching the rectum to the urethra at the apex of the prostate, is then incised. The levator ani is then dissected from the posterior surface of the prostate which is recognized by the glistening fascia of Denonvillier which covers its posterior surface. It is thus noted that not only has the posterior urethra not been opened, but often it is not even seen, which is an extremely important point in the prevention of incontinence. The left index finger is now removed from the rectum and the glove changed, a posterior retractor being placed in position.

The prostate is now opened by making an inverted V slit in its posterior surface, the apex of the incision reaching the exact apex of the prostate, and being carried down to the urethra itself. When this flap is drawn back the verumontanum is seen and a transverse incision is made in front of it. This is deepened by blunt dissection which separates the middle lobe from the posterior lobe with its dividing fibrous leaflet which carries the ejaculatory ducts uninjured through the prostate. This procedure leaves the ejaculatory ducts uninjured and still retaining their normal orifices. These facts account for the low incidence of epididymitis following our procedure.

The enucleation of the gland is now continued by separating the hypertrophied portion presenting from the capsule. The index finger is introduced into the prostatic urethra and the so-called anterior commissure split, being careful not to injure the internal sphincter any more than absolutely necessary. If the internal sphincter is split at the top there is grave danger of tearing into the plexus of Santorini with resulting hemorrhage. The Lowman clamp is now used to grasp the hypertrophied structure and the enucleation completed.

The vesicle orifice is grasped with an Allis

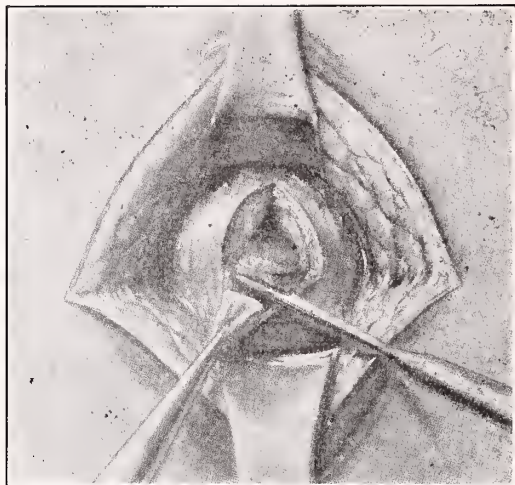


Figure 5. Enucleation of Prostate. The V shaped flap is grasped just above the verumontanum, then an incision is made in front of the lamella of tissue which separates the posterior lobe from the remaining lobes of the prostate and which contains the ejaculatory ducts. The normal orifices of the ejaculatory ducts and their natural course through the prostate are retained intact, thus eliminating the chances for epididymitis. After removal of the prostatic lobes the cavity is packed with gauze and the tongue of tissue containing the verumontanum is pushed back into place by the rectum.

clamp, the Crowell tractor closed and removed and the finger of the operator introduced into the vesical orifice to identify and remove any remaining tags of tissue or subcervical gland enlargement. Pieces of prostatic tissue as big as a lime are removed through the vesical orifice without difficulty. Particular attention is paid to the thorough removal of small nodules of prostatic tissue and to tags of fibrous material as well. This half-destroyed tissue will remain as a future menace of the free passage of urine or become necrotic and offers a fertile field for the infection of the entire prostatic cavity.

A Pezer tube, size 26 f., is introduced into the bladder through the urethra and fixed in position by means of adhesive. The vesicle orifice and prostatic cavity are now thoroughly packed with vaseline gauze, enough being used so that the bleeding is entirely stopped on the table. The floor of the pelvis is closed by drawing the two sides of the levator ani muscle together with a catgut suture. The skin is closed with silkworm gut.

#### POST OPERATIVE TREATMENT

The patient usually returns to his bed in a quite comfortable condition, thanks to the lasting effects of the anesthesia. All that is necessary is to treat him with intelligent neglect. The wise surgeon stops hemorrhage before sewing up the wound which is easily accomplished in the perineal prostatectomy, because bleeding points are easily controlled by packing the prostatic cavity tightly with gauze strips. If one packs any cavity too tightly the viscus exerts its well known quality of attempting to expel the foreign body and the spasmodic contractions resulting tend to cause

continued hemorrhage. The use of inflated rubber bags to control hemorrhage or very tight packing of any sort seems to be contra-indicated because of the resulting pain tenesmus and continued hemorrhage due to the attempt which the viscus makes to expel such a foreign body. Hemorrhage should be stopped on the operating table and the hopes that further manipulations might be accomplished in case the patient continues to bleed for several hours usually result in disaster because the patient is often thrown into shock.

In this series of 31 cases, two patients had hemorrhage. In each case the hemorrhage was due to error in technique. The intern not familiar with our methods removed the packing twelve hours after operation. This practice is almost sure to start fresh bleeding in every case, when it is done. Fortunately, immediate repacking and palliative measures were successful in controlling the hemorrhage in this case before much damage was done. Transfusion was not necessary. We have learned after several such experiences that to remove the packing too soon and too rapidly is a sure cause for trouble. Our method is to remove only a small portion on the second post operative day if the wound has been perfectly dry since operation, and the remainder is removed on the third and fourth days. It seems that early removal tears off blood clots and opens up bleeding ends. The other hemorrhage happened in much the same manner. The wound was perfectly dry and the patient had little bleeding at operation. All the packing was removed at one time on the second post operative day, slight oozing began and continued for two days in spite of packing. Although the patient's hemoglobin hadn't reached the danger point, transfusion was performed. The patient recovered nicely. It seems to me that many surgeons wait too long before resorting to transfusion. Most every case of hemorrhage will respond if transfusion is used before shock sets in. Another post-operative practice that I would like to warn against in the care of these cases, is the administration of morphine. Serious distention occurs in many cases. We find that satisfactory results may be obtained by the use of large doses of codeine without the accompanying distention.

Most patients are allowed to sit up on the fourth day. The drainage catheter isn't removed until both supra pubic and perineal wounds are healed. There is some variation in this healing time, but the average is about 9 days. After removal of the catheter sounds are passed to dilate any post-operative stricture that might occur.

Usually partial control of urination is obtained about the third day after removal of



the catheter and complete control in an average of seventeen days. The perineal wounds under our latest method of draining per urethra instead of through the perineum have almost all healed per primum.

I would like to say a few words relative to incontinence of urine following perineal prostatectomy. We all know that destruction of both internal and external sphincters will cause incontinence, but destruction of the internal sphincter without injury to the external sphincter usually does not affect continence. Although Young stressed this portion of his operation which had to do with the preservation of the external sphincter muscle, the medical profession never seemed to be sufficiently impressed to accept his method as ideal. Ceraghty, Cecil, and Hinman were the first to introduce a method by which they avoided any injury to the external sphincter by introducing a tractor directly through the entire extent of the urethra. None of their cases had incontinence. Young introduced his tractor through the membranous portion of the urethra, and it is doubtful if this procedure can always be followed without some direct injury to the external sphincter fibers. This newer method of Ceraghty and Cecil combined with the use of the Crowell retractor has practically eliminated incontinence except where there is error of technique. Only one case in our series had a distressing degree of incontinence, and we feel that the cause was due to faulty technique. This patient came to us in a very serious condition, and on examination revealed a massive prostate gland. Considerable difficulty was experienced in its removal and no doubt some damage was done to the external sphincter which under ordinary conditions is completely out of the operative field.

#### CONCLUSION

From this discussion, we might conclude that the most important factor as regards success in removal of the prostate is the pre-operative preparation and this depends on drainage.

Sacral and para sacral anesthesia at present seems to be the most successful and the safest method. We prefer using the perineal route, because there does not seem to be so much shock as noted in the supra pubic operation, also because better anesthesia and vision is produced.

#### BIBLIOGRAPHY

1. Lowsley, O. S. Surgical pathology of the prostate gland *Annals of surgery* Oct., 1918.
2. Hunt Verne C. Supra public prostatectomy *California and Western Medicine* Sept. 1926.
3. Cecil, Arthur B. Prostatectomy *American Journal of Surgery*, Dec., 1929.
4. Lowsley, O. S. The ideal Prostatectomy, *International Journal of Medicine*, March, 1927.

#### DISCUSSION

M. J. Henry, Louisville: I think this is too valuable a paper to let it pass without discussion

even though it is late. I have had no experience with the perineal route for removal of the prostate, but I think Dr. Hill is to be congratulated on having a mortality of a little over 3 per cent. I don't know where Dr. Deaver obtained his statistics that gave a general surgeon a 20 per cent mortality, because Dr. Deaver does his own prostatectomies and he is a general surgeon. I don't know whether he had them in his own hospital or where he got them, but I do not think that the general surgeon has a mortality anywhere near that in doing, as a general surgeon does, a suprapubic operation.

I have seen cases that were done by the Young method, by competent surgeons wherein there was incontinence. I have seen one case done by a competent surgeon, by the Young method, in which it left a big stone in the bladder. That would never have occurred with the suprapubic method of removal. In doing a two-stage operation that one danger would be eliminated.

We rely on deciding when to operate upon the function of the kidneys. We usually do our operations in two stages, by the suprapubic route.

In talking about the height to which you would like to have the phenol-sulphone-phthalein elimination go, personally I have more fear of a plus 60 per cent or more in two hours or two hours and fifteen minutes than I have of a 40. Personally, I would rather see a patient have a 40 elimination than a 60 elimination. We rely upon the phenol-sulphone-phthalein test and the blood urea, nonprotein nitrogen and creatinine. Perhaps the blood urea alone would do, but we have gotten into the habit of doing all three of them.

I do not believe that the suprapubic method has as many disadvantages as the perineal defenders maintain. I think it is rarely that you have any distention that bothers you. It is rarely that you have any hemorrhage that bothers you, and I have not seen any great amount of discomfort caused by Pilcher or Hagner bags. We use them routinely, I might say, and even before the use of those bags we used to pack the cavity with adrenalin gauze and that was uncomfortable in many instances, and because of that discomfort we stopped it and began using the rubber bags.

I think, on the average, no doubt if a urological surgeon is doing a great many prostatectomies, he can do them better than a general surgeon but I think a general surgeon who is operating daily on things as difficult as prostatectomy is competent to do prostatectomy. I know that opinion does not coincide with that of the urological surgeon, but I believe that throughout this country the majority of the prostatectomies are being done by the general surgeon.

D. M. Cox: Does anybody else wish to discuss

this paper? From the viewpoint of another man who is doing general work, it is very nice to have all of your surgery done by a specialist. Dr. Henry says that maybe they can do it better, but certainly there are a number of surgeons who can do good prostatectomies. At the present time the general surgeon can do suprapubic prostatectomies. There are very few general surgeons who have been trained, who have had the opportunity for the experience in doing perineal prostatectomy. It may come in the future that the general surgeon will have that opportunity. The present trend of hospital experience, however, is that a man taking urology will take several years in that one particular line, and the other man who comes along and takes a general surgical internship won't have an opportunity to be in on perineal prostatectomy or urological work.

Certainly a town of 50,000 people or less is not going to have a competent urologist to do all of the urological work, and I don't think that all of the people in that town who need urological work should go to the city. Certainly a general surgeon can do the suprapubic prostatectomy in the two stage or in the one stage as each individual case presents itself, and get a percentage of, not 20 or 30 mortality, but certainly below 10, at least.

Is there any other discussion of this paper? If not, I will ask the Doctor to close the paper.

**Clem Hill (In closing):** I appreciate very much the remarks made by the gentlemen. Dr. Henry especially made one important statement that I think we should add to. That is the question of stones in the bladder which we are often surprised to find in doing a prostatectomy if an X-ray has not been previously taken.

I know of several instances where at the time of operation stones were found, and it always has been a habit of ours to do a routine X-ray before the operation is performed, thereby eliminating that possibility.

The question of the general surgeon doing prostatectomies, I think, is perfectly legitimate, and, as Dr. Cox says, there are lots of places where a urologist can't be reached. I think there are some general surgeons who are getting just as good results as urological surgeons, and are having good success by the suprapubic method.

It is the occasional and inexperienced operator that we are warning against doing this type of work. No doubt you all can recall the very high percentage of mortality that this class of operators are experiencing. Dr. Deaver said it was the occasional operator who had this mortality of between 20 and 30 per cent.

I maintain that it is not so much the operative procedure that protects the patient, as it is the preliminary care and being able to meet the emergencies that arise in this type of case, all of which must come from experience in dealing with people suffering from urinary obstruction.

## WOMAN'S AUXILIARY

### A PRESIDENTIAL MESSAGE

Under the well-directed energies of our President, Mrs. E. B. Houston; the work of a new year has begun with definite, well-defined objectives. The plan of procedure is plainly developed. It is so admirably arranged that the smallest organized Auxiliary has just as good a chance to win first place as have the larger, older Auxiliaries in the State. For, the points determining the winners are to be given on a per capita basis. For instance, an Auxiliary of 5 members makes 100 points—then, the per capita points will be 20; an Auxiliary of 50 members makes 1000 points—then, the per capita points will be 20. The per capita basis gives equal reward for all effort made.

The President sent the following letter, together with the appended outlines, to each of the Councilors, in October, and she has now given the Chairman of Public Instruction permission to pass this constructive message on to all the members through this issue of the Journal.

May we not recognize in this splendid plan of procedure, a yard-stick by which to measure our abilities and accomplishment in the progressive growth of our organization, in the last analysis, a challenge to our loyalty to the medical profession?

### LETTER TO COUNCILORS

October 7, 1930.

Dear District Councilor: We are entering upon a new year in the history of the Woman's Auxiliary to the Kentucky Medical Association. I am depending upon you Councilors to help me make it the Auxiliary's best year. The eleven Councilors, with Mrs. B. K. Menifee, 2120 Glenway Avenue, Covington, Kentucky, as Chairman, constitute the board of organization. It is upon you we are depending for the organization of new counties and promotion of all of our works in the county.

I am sure you understand that we are to work with the approval and cooperation of Kentucky Doctors and that you will find the County Medical Societies willing and anxious to help you with your organizations. You will find the name of the Secretary of each of your County Medical Societies by referring to the Calendar of County Society meetings on Page 11 in the September, 1930, number of the Kentucky Medical Journal. On page 427 of that issue of the Journal (September, 1930), you will find the name of the counties of your district and the name and address of your District Medical Councilor. It is my hope and ambition that you may organize an Auxiliary in each of these counties. If conditions are such that you cannot organize them separately, may be, you can combine two counties in some sections. I think you will find that the Doctors are doing this in a



few places. In organizing, elect a president, vice-president, secretary, treasurer and historian and any other officers the locality demands.

The newly elected President will appoint the necessary committees. Very important ones being a Program, Publicity, Jane Todd Crawford Fund, Hygeia, Constitution and By-Laws, Membership and Public Relations. Some County Auxiliaries have found it very convenient to meet at the time and place that the County Medical Society meets.

When a subscription is secured for the health magazine, Hygeia, see that the name of your County Auxiliary is plainly given and send it direct to the American Medical Association, 535 North Dearborn Street, Chicago, Illinois. Each Auxiliary gets a nice commission on each subscription secured, providing the name of the Auxiliary is given. This Journal should be in every Doctor's office, each school in the county, and in as many homes in the county as possible. Any information needed concerning this journal may be had from State Chairman, Mrs. R. L. Collins, Hazard, Kentucky, or from the National Chairman, Mrs. R. N. Herbert, 1509 Stratton Avenue, Nashville, Tennessee.

Any funds secured for the Jane Todd Crawford Memorial Fund are to be sent to the State Treasurer, Mrs. W. C. Dugan, Clark, Kentucky. Please make everyone understand that this fund is to be used to erect some suitable memorial to Jane Todd Crawford, the woman on which Doctor Ephraim McDowell of Danville, Kentucky, without an anaesthetic performed in 1809 the first operation in the world for an Ovarian tumor. In the Hall of Fame, Washington, D. C., stands a memorial to Doctor Ephraim McDowell. Was Jane Crawford not as much a heroine, as McDowell was a hero? The Jane Todd Crawford Committee is a Sub-Committee of the Public Instruction Committee. Any information needed concerning this fund may be had from Mrs. A. T. McCormack, Brown Hotel, Louisville, Kentucky.

It is hoped that you may be able to promote a study course in each of your County Auxiliaries. It is very necessary that the Doctors wives be well acquainted with the Kentucky health laws as well as all movements to improve the general health.

It will always be well to invite outside persons to this study course. Get as much of this information into other clubs of your County as possible. Especially, Parent-Teachers organizations. Information you need on program material will also come from Chairman of Public Instruction, Mrs. A. T. McCormack, Louisville, Kentucky.

One of the very interesting things you can introduce into the work of your counties is the Historian's work of securing life histories of the

Doctors of your Counties both past and present. There should always be two copies, one to be kept by your County Historian for your County Scrap Book and one to be sent to your State Historian, Mrs. W. F. Boggess, Apt. 45, Weissinger Gaultert, Louisville, Kentucky. Be sure to find any information concerning preparation of medicines, invention of instruments or any operations done in your county that were the first to be done in the State or Nation for any particular derangement, disease or deformity. This will be considered pioneering in medicine and will be given credit in the history of Kentucky medicine that is being prepared.

You will please encourage each county to make a County Scrap Book to be kept in the County. This book is to contain the Life History of the Medical Doctors who have been born in the county, have practiced in the county, in the past, or are practicing at present. The scrap book is also to contain any medical news of the county, State or Nation that the Auxiliary wishes to preserve. The county historian is county chairman of this work.

You will also please encourage each Auxiliary to send medical news of special interest to the Chairman of State Scrap Book, Mrs. J. W. Sams, Crestwood, Kentucky, to be placed in the State Scrap Book.

I shall expect you to insist that each Auxiliary send worth while news items to the Kentucky Medical Journal to be published in the Women's page. I think it would be very nice indeed if you, as Councilor of your district, would put forth extra effort to see that your district gets its proportion of publicity.

You possibly know that our State Treasurer's Book is audited each year in July. For this reason it is necessary for fifty cents (.50) of each one dollar (\$1.00) membership dues to be sent in to the State Treasurer, Mrs. W. C. Dugan, Clark, Kentucky, by July 1, 1931, in order to get credit in the contest which is being put on in the State. The remaining fifty cents is to be kept in the County Auxiliary to be used as directed by the County Auxiliary.

Enclosed in your envelope you will find a copy of the Councilors Contest. I think it is self-explanatory but if there is anything you do not understand I will be glad to explain it to you. This means that you eleven district councilors are entering upon friendly competition in accomplishing work for our Kentucky Woman's Auxiliary and I am very much concerned about who is to be First, Second, Third and Honorable Mention Councilors when the contest closes September 1, 1931. Do not let your district fail. Be sure that all credits of each county are reported.

You will also find that I am sending you a copy of the "County Contest" to be entered into by all the counties of the State. Copies of this

contest have been sent to all the County Presidents. I am sending you several copies of this contest for your use. Please make sure that the President of each of your organized counties understands this contest and later send a copy to the President of every county you organize and insist on each county working it in full. The better the counties work this contest, the better your report will be in your councilors contest. In order that you may know what your counties are doing I am asking you to ask each of your County Auxiliaries to report to you each quarter just what they have done and in turn I am asking you to report quarterly to your Chairman, Mrs. B. K. Menifee, 2120 Glenway Avenue, Covington, Kentucky, your district's total credits. Enclosed is a blank for this purpose. When you organize a new county send names and addresses of the officers to Mrs. O. R. Kidd, 305 North Fifth Street, Paducah, Kentucky (Recording Secretary).

Will you please prepare a sufficient number of blanks similar to the one I am enclosing to send four copies to each of your County Auxiliary on which they may make their four quarterly reports to you.

You will note that enclosed is a series of explanations on the county contest. One of these is to be mailed with each County Contest. Will you please include in the same envelope with the county contest and explanations, a personal letter from yourself to each Auxiliary president, giving her your ideas about how she can best put the work over in her County.

I know you Councilors are going to stand by me this year and I thank you in advance for every duty performed.

Please do not hesitate to write me for any information wanted. If I do not have it, I will direct you to the proper source.

Yours for Service,

JESSIE HOUSTON.

(Mrs. E. B. Houston),

President.

### COUNTY AUXILIARY CONTEST

To the county auxiliary scoring the greatest number of points per capita on the following requirements there is being offered (10) ten dollars in cash:

#### EXPLANATION

The per capita points are to be determined by dividing the total number of points that the County Auxiliary makes by the number of paid-up members of this county auxiliary.

##### Part One—30 Points—Members

For each paid-up member of an auxiliary. Dues should be paid by July 1, 1931. State Treasurer will determine the number.

##### Part Two—20 Points—Hygeia

For each subscription secured to Hygeia—Report number of subscriptions to State Hygeia

Chairman, Mrs. R. L. Collins, Hazard, Kentucky.

##### Part Three—25 Points—Biographica

For each Biography of an M. D. living or deceased, who was either born or has practiced or is practicing in your county, secured for either your State Historian or County Historian.

##### Part Four—20 Points—Story

For each Story of Medical Practice, Medical Superstition or of other interesting data concerning the medical profession. This to be sent to State Historian.

##### Part Five—50 Points—Jane Todd Crawford Fund

For each one dollar (\$1.00) secured for the Jane Todd Crawford Fund. The money to be sent to the State Treasurer, Mrs. W. C. Dugan, Clark, Kentucky.

##### Part Six—50 Points—Auxiliary Scrap Book

For each Auxiliary Scrap Book brought to the 1931 annual meeting of The Woman's Auxiliary to the Kentucky Medical Association.

##### Part Seven—20 Points—State Scrap Book

For each article sent to Mrs. J. W. Sams, Crestwood, Kentucky, for the State Scrap Book.

##### Part Eight—20 Points—Kentucky Medical Journal

For each monthly contribution your auxiliary makes to the Kentucky Medical Journal, beginning with the December, 1930, number, ending with the September, 1931, number. All articles should be sent to the Chairman of Public Instruction, Mrs. A. T. McCormack, Brown Hotel, Louisville.

##### Part Nine—50 Points—Regular Meetings

For each regular meeting held from September 15, 1930, to September 1, 1931. Provided that not more than one regular meeting per month is counted.

##### Part Ten—500 Points—Study Course

For each Study Course of nine lessons completed by a county Auxiliary between September 15, 1930, and September 1, 1931. The course is to consist of the nine lessons on Kentucky Health Laws or nine other lessons approved by Mrs. A. T. McCormack, Chairman Public Instruction, Brown Hotel, Louisville, Kentucky.

##### Part Eleven—200 Points—American Medical Association Auxiliary Study

For four or more lessons in the Study Course sent out by the A. M. A. Woman's Auxiliary and approved by the State Chairman of Public Instruction.

##### Part Twelve—25 Points—Attendance at Annual Meeting

For each Doctor's widow, mother, wife, sister, daughter registered from a county at the 1931 annual meeting of the Woman's Auxiliary of the Kentucky Medical Association.

The winner will be determined by the District Councilor and Officers and chairmen of stand-



ing committees, whose duties relate to any or all of the twelve parts of the Contest.

### COUNCILOR'S CONTEST

To the District Councilor of the Woman's Auxiliary to the Kentucky Medical Association scoring the greatest number of credits per capita, there will be given the distinction of FIRST SECOND, THIRD and HONORABLE MENTION Councilor.

### EXPLANATION

The per capita credits are to be determined by dividing the total number of points made in a district by the total number of members paid in that district.

#### Part One—1200 Credits—County Organized

For each county organized in her district from September 15, 1930, to September 1, 1931.

#### Part Two—60 Credits—Membership

For each paid-up member in her District. Dues should be paid by September 1, 1931. The number of members will be determined by the State Treasurer.

#### Part Three—40 Credits—Hygeia

For each subscription secured to Hygeia in her District from September 15, 1930, to September 1, 1931.

#### Part Four—50 Credits—Biographies

For each Biography of an M. D. secured in her District from September 15, 1930, to September 1, 1931.

#### Part Five—40 Credits—Story

For each Story of Medical Practice, Medical Superstition or of other interesting data concerning the Medical Profession. This to be sent to the State Historian.

#### Part Six—100 Credits—Jane Todd Crawford Fund

For each one dollar (\$1.00) sent to the State Treasurer for the Jane Todd Crawford Fund from her District.

#### Part Seven—100 Points—State Scrap Book

For each Auxiliary Scrap Book brought to the 1931 Annual Meeting of the Women's Auxiliary, from her district.

#### Part Eight—40 Credits—State Scrap Book

For each article sent to Mrs. J. W. Sams, Crestwood, Kentucky, for the State Scrap Book from her district.

#### Part Nine—40 Credits—Kentucky Medical Journal

For each monthly contribution made from her district to the Kentucky Medical Journal, beginning with the December number, 1930, ending with the September number, 1931. All articles should be sent to the Chairman of Public Instruction, Mrs. A. T. McCormack, Brown Hotel, Louisville, Kentucky.

#### Part Ten—100 Credits—Regular Meetings

For each regular meeting held in her district from September 15, 1930, to September 1, 1931. Provided not more than one meeting per month for any one auxiliary is counted.

#### Part Eleven—400 Credits—A. M. A. Auxiliary Study

For four or more lessons in the Study Envelope Course sent out by A. M. A. Woman's Auxiliary and approved by the State Chairman of Public Instruction.

#### Part Twelve—100 Credits—Study Course

For Study Course of nine lessons completed by a county auxiliary of her district between September 15, 1930, and September 1, 1931. The course is to be nine lessons on Kentucky Health Laws or nine lessons from material sent out by the National Auxiliary to the American Medical Association or nine lessons approved by Mrs. A. T. McCormack, Chairman of Public Instruction, Brown Hotel, Louisville, Kentucky.

#### Part Thirteen—50 Credits—Attendance at Annual Meeting

For each Doctor's widow, wife, sister, mother or daughter registered from her district at the 1931 annual meeting of the Woman's Auxiliary.

### THE SOUTHERN MEDICAL IN KENTUCKY

The honor of entertaining the Southern Medical Association and its Auxiliary for the 1930 annual conference was Kentucky's proud privilege from November 11-15. The regular annual meetings were all held in Louisville but the last day, Saturday, November 15, was given over to a motorcade which took the visitors to Frankfort, Danville and Harrodsburg for special memorial observances of the accomplishments of that great nobleman of the profession, Dr. Ephraim McDowell. A gracious gesture on the part of the Southern was that of naming this the McDowell Memorial Meeting as Dr. McDowell's birthday was November 11, the opening day of the session.

The program for the meeting and entertainment of the Auxiliary as given tentatively, in the October Journal was carried through with few changes. The program for the unveiling of the sculptor's model of the statue of Dr. Ephraim McDowell in the rotunda of the Capitol was, essentially, that published in the November issue of the Journal. The addresses of Dr. George A. Hendon and Mrs. P. E. Blackerby, upon this occasion, are found in the December issue.

One new venture of the Auxiliary, particularly gratifying to the Kentucky members, was the decision to sponsor the Jane Todd Crawford memorial project with the election of Mrs. J. N. Brawner of Atlanta, immediate Past President, as a member of the Jane Todd Crawford Memorial Committee (a sub-committee of our Public Instruction Committee) and the contribution of fifty dollars (\$50.00) toward the fund.

Kentuckians, too, were proud of the election of Mr. George A. Hendon as First Vice-President. Following is the list of officers elected for the ensuing year:

President—Mrs. S. A. Collom, Texarkana, Texas.

President-Elect—Mrs. Chas. E. Oates, Little Rock, Arkansas.

First Vice-President—Mrs. George A. Hendon, Louisville, Kentucky.

Second Vice-President—Mrs. Milton C. Lewis, Nashville, Tennessee.

Recording Secretary—Mrs. Walter C. Swann, Huntington, West Virginia.

Corresponding Secretary—Mrs. Allen Collom, Texarkana, Texas.

Treasurer—Mrs. Southgate Leigh, Norfolk, Virginia.

Parliamentarian—Mrs. Edward Jelks, Jacksonville, Florida.

Historian—Mrs. Augustus Street, Vicksburg, Mississippi.

#### DR. CAUDILL ADDRESSES PERRY COUNTY

The Perry County Medical Auxiliary, with Mrs. G. B. Wheeler presiding, met at the home of Mrs. B. M. Brown, November 20, 1930.

After the routine business, the following program was given:

Dr. Fred Caudill, County Health Officer, gave a short history of the medical profession in Kentucky and the South and then gave a stirring talk on Child Welfare and kindred subjects, quoting largely from President Hoover's address before the White House Conference, which was being held in Washington, D. C., at that time.

Little Carolyn Jones gave several readings.

Mrs. R. L. Collins gave an interesting talk on some of the activities of the Southern Medical Association, which was held recently in Louisville.

Delightful refreshments were served by the hostess and the Auxiliary adjourned to meet in January.

#### BOOK REVIEW

##### THE VOLUME OF THE BLOOD AND PLASMA IN HEALTH AND DISEASE.—

By Leonard G. Rowntree, M. D., and George E. Brown, M. D., Division of Medicine, The Mayo Clinic and The Mayo Foundation, Rochester, Minnesota, with the Technical Assistance of Grace M. Roth. 12mo. 219 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1929. Cloth, \$3 net.

Like the other books in the Mayo Clinic Monograph Series this is a clinical presentation, pointing the way to the utilization of all the recent findings in the diagnosis, prognosis and treatment of disease.

Is an increase in the blood mass, with overfilling of the vascular system, in any way responsible for hypertension? Is the large heart frequently seen in pernicious anemia

due to large blood volume? Is the large heart sometimes seen in myocardial insufficiency (unassociated with hypertension of nephritis) due to an increase in blood mass? To the solution of such vital problems as these, the authors turn the valuable data discovered in their clinical work.

The first few chapters are devoted to a discussion of methods and technic. The remaining chapters consider the blood and plasma volume in normal subjects, in obesity, various types of edema, diseases of the blood, spleen, liver vascular system, endocrine glands, etc.

**CLINICAL OBSTETRICS**—By Paul T. Harper, Ph. B., M. D., Sc. D., F. A. C. S. Fellow of the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons, and of the New York Obstetrical Society. Clinical Professor of Obstetrics, Albany Medical College. Regional Consultant in Obstetrics, New York State Department of Health.

Illustrated with 84 plates of engravings (250 figures) with legends and charts. F. A. Davis Company, Publishers, Philadelphia; Price \$8.00.

As the author states in his introduction "New situations develop rapidly in obstetrical work—a satisfactory outcome may depend altogether upon ability to grasp the significance of important symptoms and signs quickly, to select the appropriate therapeutic or operative measure and to make timely application of it. When and why an operative measure is instituted is far more important than the facility with which it is carried out."

Dr. Harper leaves nothing to the imagination as regards detail of technic when operative interference is indicated. With an abundance of clear cut illustrations (his own drawings) and equally definite step by step descriptions, the preferred procedure is given. The book is exactly what the title implies, a practical clinical obstetrics.

**SURGICAL CLINICS OF NORTH AMERICA** (Mayo Clinic Number—Feb., 1930)—Volume 10. No. 1, 174 pages with 82 illustrations. Paper \$12.00 per clinic year. Cloth \$16.00 per clinic year. (Issued serially, one number every other month). W. B. Saunders Company, Philadelphia and London.

Contributors to this number are either in the Mayo Clinic or connected with it through the Mayo Foundation at the University of Minnesota. The volume is full of practical methods well illustrated and explained. Such works are valuable to the busy surgeon because they enable him to derive the benefits of clinical teaching without the necessary absences.



Constant reference is easily accomplished because of the complete index furnished with each six volumes.

**THE SURGICAL CLINICS OF NORTH AMERICA** (Chicago Number)—(Issued serially, one number every other month.) Volume 10. No. 2. (Chicago Number—April, 1930. 252 pages with 72 illustrations. Per clinic year (February, 1930 to December, 1930.) Paper, \$12.00; Cloth, \$16.00. Philadelphia and London. W. W. Saunders Company.

The Chicago volume presents a large number of cases by Illinois surgeons, each the subject of a clear and concise technic. A. D. Bevan describes four clinics which had been given before the Fellows of the American College of Surgeons in 1929. There are also four different discussions on appendicitis. W. C. Hueper and L. E. Garrison summarize agranulocytosis, and G. L. McWhorter gives a very complete report on agation of the femoral artery and vein based on three cases.

**MINOR SURGERY AND BANDAGING**—For the use of the House Surgeons, Dressers and Junior Practitioners. Twentieth Edition, by Givynne Williams, M. S., F. R. C. S., Surgeon University College Hospital, with 262 illustrations. F. A. Davis Company, Publishers, Philadelphia. Price \$3.50.

Many changes have been made in this new twentieth edition, and they have all been practically tested, the chapters on fractures have been extended and the non-operative treatment of the commoner varieties has been detailed more fully with the help of illustrative diagrams.

**MECHANICS AND CHEMISTRY OF THE HUMAN BODY**.—By O. Boto Schellberg. In this volume the author has amplified and extended the principles of colonic therapy set forth in his previous book, "Colonic Therapy," and has added entirely new material, mostly the result of researches carried on since the earlier work was published. In this book, especial attention is given to the physiological aspect of colon treatment, and therein we find certain definite findings on colon physiology which have never been published before. The value of this addition to the decidedly meagre knowledge on this important branch of physiology can hardly be over-estimated.

A very valuable section deals with the chemistry of the body cells and the part played by biologic chemistry in that varied aggregation of ailments now loosely grouped under the term of "intestinal diseases." This is a field of biologic research which

modern chemists have left practically untouched, and though the author makes no claim to have settled the many vexatious questions which arise whenever we attempt to gain a better understanding of colon pathology, he has nevertheless marshalled the established facts heretofore postulated. More than that, he has made such substantial additions to preexisting knowledge that the subject stands illuminated in a manner previously unprecedented. In this interesting and worthwhile book physicians are now supplied with a practical treatise on colon physiology and pathology which should give great impetus to the study and treatment of disturbances of the lower alimentary canal.

The proper management of colon diseases and the rational technic of irrigation of the lower alimentary tract is set forth in a simple, yet explicit manner in the book, and it is an eminently practical manual for clinical use.

It is a distinct contribution to literature dealing with the colon and its ailments.

This book, which is published by Schellberg Institute, Inc., 24 East 48th Street, New York City, contains 50 pages and 8 illustrations. It is cloth bound and obtainable at \$1.00 a copy.

**MANUAL OF PHYSICAL AND CLINICAL DIAGNOSIS**—By Otto Srifert, late Professor of Medicine, Wuerzburg and Dr. Friedrich Mueller, Professor of Medicine, Minich, authorized translation from the 24th German Edition, by E. Cowles Andrus, M. D., Associate in Medicine, Johns Hopkins University. 140 illustrations and 3 colored inserts. J. B. Lippincott Company, Publishers, Philadelphia.

This book is intended to meet the demand for a succinct presentation of the methods of examination and to furnish a collection of those data, a knowledge of which is an ever present necessity to the physician at the bedside. On the one hand these data on account of their quantity and diversity can only with difficulty be accurately memorized, on the other hand they are distributed in so many text-books and monographs that it is toilsome and time consuming to hunt them out upon each occasion. In the selection and arrangements of material the authors have been guided by experience in teaching. Certain addition have been made to include procedures to which the American student and physician are accustomed, blood chemistry and staining methods, etc.

**TULAREMIA, HISTORY, PATHOLOGY, DIAGNOSIS AND TREATMENT**—By Walter M. Simpson, M. S., M. D., F. A. C. P. Director of Diagnostic Laboratories, Miami

Valley Hospital, Dayton, Ohio. Formerly Senior Instructor in Pathology, University of Michigan. Foreword by Dr. Edward Francis, Surgeon U. S. P. H. S., with 53 text illustrations and 2 colored plates. Paul B. Hoeber, Inc., Publishers, New York City.

Tularemia has become a world recognized new disease of man and has taken its place in the medical literature of every country and any new material on this subject is always welcome.

Dr. Simpson has thoroughly covered the subject from every angle and no practitioner should be without this book—small, compact and concise.

**DISEASES OF THE EAR**—By Philip D. Kerrison, M. D., Consulting Aural Surgeon to Manhattan Eye, Ear, Nose and Throat Hospital. Fellow American College of Surgeons, Member of American Otological Society, American Laryngological, Rhinological and Otological Society, American Academy of Ophthalmology and Otolaryngology and New York Academy of Medicine. Fourth Edition, Revised and Enlarged. 332 illustrations in text and 2 full pages in color. J. B. Lippincott, Company, Publishers, Philadelphia and London. Price \$7.50.

Probably in no branch of medicine have more notable advances been achieved during the past decade than in otology. The wholly new field of work which has been opened by the successful investigation of the static labyrinth; the new light upon syphilitic lesions of the labyrinth and auditory nerve resulting from the recent world-wide renewal of interest in the study of all phases of syphilis; and the investigations still in progress as to the influence of autogenous vaccines and leucocyte extracts upon certain phases of aural disease,—these and other additions to our knowledge have suggested new problems in the working out of which laboratory investigations have been closely followed by practical therapeutic results.

In aural surgery activities can no longer be confined to the narrow limits of the tympanum and mastoid process, but must include the more hazardous field of intracranial surgery and the yet more delicate and difficult work upon the auditory labyrinth itself. There is, then, some justification at the present time for yet another book,—i. e., an attempt to present the complex subject of otology in the light of recent advances.

If the arrangement of the subject matter, particularly as to the proportionate space given to the different subjects, represents a departure from that usually followed, this has become necessary in order to bring the various subjects now pertaining to otology

into a true relation with their actual and proportionate importance.

For example, labyrinthine physiology, suppurative diseases of the labyrinth, and the surgery of the labyrinth, which are usually rather briefly dealt with, are here considered in three separate chapters which occupy a very considerable section of the book. Again, the suppurative lesions of the brain and meninges are accorded far more space than is usually allotted them in text-books of otology.

In the Section devoted to operative surgery, the plan of illustrating each successive step of the various operations has been adopted. This, it is believed, will be of special value to students of otology living at a distance from the larger medical centers and who are therefore denied the educational advantages of large surgical clinics. With few exceptions, the illustrations throughout the book are from original drawings made under the writer's personal supervision.

**THE PRINCIPLES OF BACTERIOLOGY AND IMMUNITY**—By W. W. C. Topley, M. A., M. D., M. Sc., F. R. C. P., Professor of Bacteriology and Immunology, University of London, Director of the Division of Bacteriology and Immunology, London School of Hygiene and Tropical Medicine, and G. S. Wilson, M. D., M. R. C. P., D. P. H. Reader in Bacteriology and Immunology in the University of London, London School of Hygiene and Tropical Medicine. In two volumes. William Wood and Company, 156 Fifth Avenue, New York City, Publishers. Price \$15.00.

These volumes are the most comprehensive treatises that has been written on these subjects for many years. The authors on a basis of personal experience in post-graduate and under-graduate teachings have provided a textbook, which will be of inestimable service to students of medicine and also those who wish to make a serious study of bacteriology and its applications to the problems of infection and resistance. Diseases in live stock, in their relation to susceptibility in man, are discussed in Part IV.

The book as a whole is devoted to the applications of bacteriological principles to the study and control of infective diseases.

While the general practitioner can not be a bacteriological technician, he should be familiar technic and be able to interpret results and this can only be accomplished by consulting good literature and we recommend these volumes for that purpose.



# Kentucky Medical Journal

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1931 MEETING LEXINGTON

## COUNTY SOCIETY REPORTS

**Ballard:** The Ballard County Medical Society met in LaCenter October 31, 1930, with Dr. J. F. Hahs.

Those present were: Drs. Ezra Titsworth, W. A. Page, J. F. Hahs, F. H. Russell, R. D. Harper, J. C. Sullivan and T. J. Davis.

A paper, "Inoperable Carcinoma of Pancreas," was read by Dr. Titsworth. The paper was discussed and enjoyed by all present. Dr. Titsworth very ably and logically presented his subject. Dr. W. A. Page was elected Delegate to State Convention, 1931, and Dr. W. A. Ashbrook was elected Alternate. The meeting adjourned to meet December 16, 1930, with Dr. Hahs at Lacenter.

J. C. SULLIVAN,  
Secretary.

**Letcher:** Members of the Letcher County Medical Society and the Woman's Auxiliary met in combined banquet session Friday evening, November 21, in the Evergreen Tea Room at Whitesburg. After a very delicious meal the following program was given:

A most interesting talk was given by Dr. R. P. Ball of Harlan on Hyperthyroidism.

An equally interesting talk was given by Dr. Margaret V. Pirsch of Pikeville on Pre-natal and Pediatric Care.

The following physicians, their wives and guests were present:

Dr. and Mrs. John W. Combs, Whitesburg; Dr. Can M. Bentley, Neon; Dr. Owen Pigman, Farraday; Dr. and Mrs. Thomas Jennings, Whitesburg; Dr. Bert C. Bach, Whitesburg; Dr. and Mrs. A. A. Weddle, Blackey; Dr. T. M. Perry, McRoberts; Dr. Gid Ison, Blackey; Dr. Margaret Pirsch, Pikeville; Dr. Page, Pikeville; Dr. and Mrs. R. P. Ball, Harlan; Dr. T. N. Radcliffe, Kona; Dr. J. E. Crawford, Whitesburg; Miss Grace Wells, Whitesburg; Dr. and Mrs. R. Dow Collins, Whitesburg.

R. DOW COLLINS,  
Secretary-Treasurer.

**Union:** The Union County Medical Society met in regular session on Tuesday, December 2, 1930, at the office of Drs. Graves and Stewart. The following were present: Doctors Sloan, Graves, Lynn, Allen, Carr, Stewart, Donan and Conway.

A motion was made and seconded that each monthly meeting have one paper by a physician, taken from the list of members alphabetically. Motion carried.

A motion was made, seconded and carried that no more free clinics for tonsil and trachoma cases be conducted except by physicians within the county.

A motion was made, seconded and carried that the County Health Officer be instructed that he

may vaccinate only all school children against smallpox, free, also indigents when they are referred by the family physician.

A motion was made, seconded and carried that typhoid inoculation given by the County Health Officer be limited to all children of school age, and indigents of any age provided they have been sent by their family physician.

A motion was made, seconded and carried that the County Health Officer give free the Schick test, and toxin-anti-toxin to all children.

The following officers were elected unanimously:

President—C. B. Graves, M. D.

Vice-President—G. B. Carr, M. D.

Secretary—D. C. Donan, M. D.

Delegate—H. B. Allen, M. D.

Alternate Delegate—H. B. Stewart, M. D.

The following members paid dues for 1931: Drs. Graves, Carr, Lynn, Conway, Allen, Stewart, Sloan and Donan. Following this the meeting adjourned.

DAVID C. DONAN, Secretary.

**Franklin:** The Society met in regular monthly session at the Capital Hotel, October 2, 1930, at 12 o'clock, noon.

Dr. John Patterson, the President, called the meeting to order.

The following members were present: Drs. Ginn, Budd, Demaree, Heilman, Lyon, Jackson, Travis, Stewart, Youmans, Patterson, Minish and C. T. Coleman. Guests: Dr. J. D. Allen, Louisville, and Dr. Lesser, Technician at our local hospital.

Minutes of the September meeting read and approved.

Dr. John Stewart reported to the Society a tentative program of the unveiling of the McDowell statue, which will take place in the rotunda of the State Capitol Building on November 15, 1930. A motion was made and carried unanimously that the President appoint a committee of three to assist in arranging for the unveiling. Dr. Patterson appointed Drs. Stewart, Budd and Minish. The whole membership of the Society is to act as a reception committee.

The scientific program followed with Dr. John D. Allen, giving us a most interesting and instructive talk with a chart demonstration on the Schilling method of Differential Blood Count.

The Society then adjourned to the hotel dining room for lunch.

L. T. MINISH, Secretary.

**Franklin:** The Society met in regular session in the writing room of the Capital Hotel on

Thursday, July 3, 1930.

The Society was called to order by the President, Dr. John Patterson. Reading of the minutes of the June meeting were dispensed with by unanimous vote.

Members present were: Drs. Cobin, Roemele, Jackson, C. T. Coleman, Heilman, Budd, Travis, Wilt, Patterson and Minish.

Dr. Heilman had charge of the program and introduced Dr. D. Y. Keith of Louisville, Ky., who gave us a most interesting and instructive talk on the uses of the X-ray, especially in the early diagnosis of Osteogenetic Sarcoma and Osteomyelitis, emphasizing how important the early diagnosis of osteomyelitis, his lecture was fittingly illustrated with X-ray lantern slides.

The Society then adjourned to the hotel dining room for lunch.

L. T. MINISH, Secretary.

**Franklin:** The Franklin County Medical Society met in regular monthly session on September 4, 1930, in the writing room of the Capital Hotel. The Society was called to order by the President, Dr. John Patterson. Minutes of the August meeting were read and approved.

Members present were: Drs. Ginn, Lyon, Youmans, Patterson, Demaree, Darnell, C. T. Coleman and Minish.

Dr. A. M. Lyon had the program and read a most interesting and instructive paper on the subject of Internal Secretions, bringing out in a very impressive way the importance of all the eight ductless glands with special reference to the pituitary, thyroid and adrenals. Dr. Lyon's paper was freely discussed by most of the members present, after which the Society adjourned to the hotel dining room for lunch.

L. T. MINISH, Secretary.

**Muldraugh Hill:** The Society met in Elizabethtown, December 18, with the following program:

"Influenza"—Dr. Roberts, West Point.

"Some Cases of Obstetrics"—Dr. Riggs, Upton.

"Chorea"—A Cause of Death—Case Report, Dr. John Moren, Louisville.

"Tularemia"—Dr. C. F. Long, Elizabethtown.

"Caesarian Section" Choice of Operation—Dr. Edw. Speidel, Louisville.

"Blood Transfusion"—Dr. Harry M. Weeter, Louisville.

WALTER HUME, Secretary.





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JOHN W. STEVENS, M. D., Physician-in-Charge

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NEXT ANNUAL SESSION, LEXINGTON, 1931

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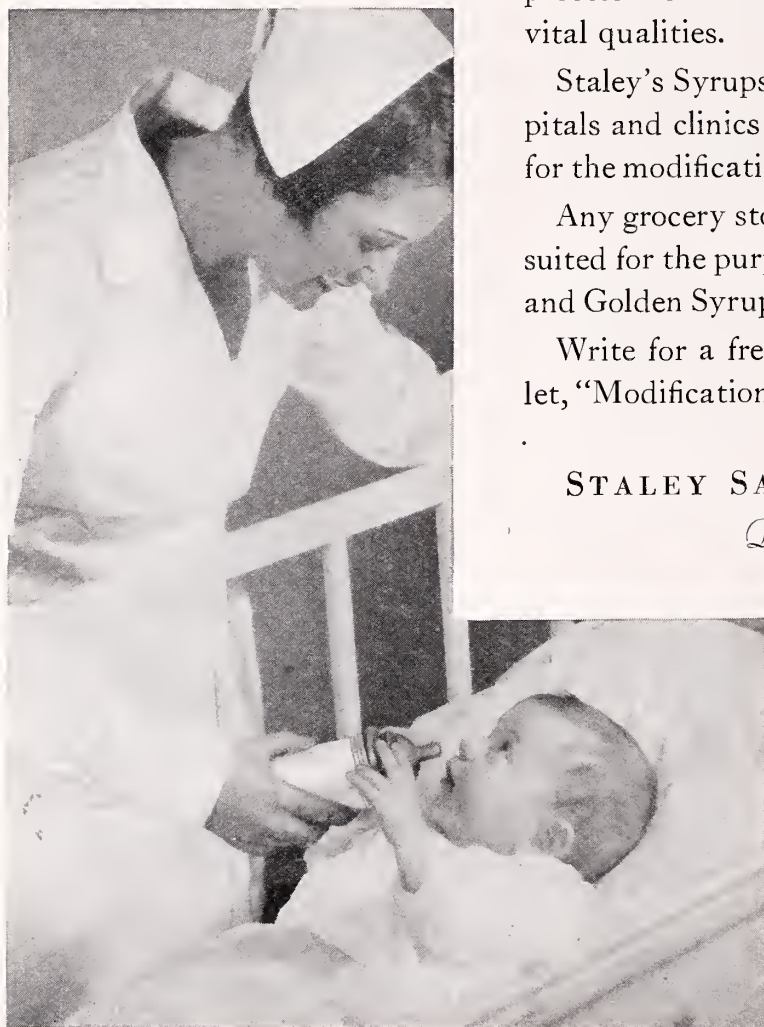
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# KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

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BOWLING GREEN, KY.,

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## EDITORIALS

### THE POST-GRADUATE COURSE

A Post-Graduate Course will be held again this year under the auspices of the Kentucky State Medical Association with the co-operation of the Faculty of the University of Louisville. The course will be rather more extensive than heretofore. All of the old students of the University of Louisville as well as members of the Kentucky State Medical Association are invited to attend. Lectures will be held from June 1 to 13 so that the Alumni of the University of Louisville may be able to attend the Commencement exercises at the same time. Further information will be given from month to month.

### CENTRAL TRI-STATE MEDICAL SOCIETY

One has but to read the catalogues of any of the larger medical schools, which contain a list of the research publications of the members of its faculty, to realize the complexity of the science of medicine, as that too inclusive term is used at present. Such emphasis has been placed upon scientific investigation that its votaries are not only producing a wealth of real results, but, in addition, are loading the scientific press with pages of chaff that are inconclusive and inconsequential. The differentiation between what is valuable and what is not in these more recently developed subjects, as well as the constant iteration and reiteration of the best methods of the practice of the art of medicine, is the chief reason for the multiplicity of medical societies.

In our form of organization the County Medical Society is the basis of its whole democracy. These are the *sine qua non* of medical organization. However few the number of physicians in a county they cannot hope to obtain or maintain public confidence unless they are frequently meeting with one another to consider the local problems for which our people in Kentucky hold them responsible. The physicians of Kentucky are the guardians of its public health. In the same degree the State Medical Association is the responsible agency for the con-

trol and guidance of state-wide movements in medical practice, education and public health.

However, these have not been found to be enough, and, for this reason, in almost every section of the state, councilor, district societies have been organized and these are developing better programs and are receiving more and more support from the profession. Due to interstate line these district organizations sometimes produce peculiar complexities. One of these has been splendidly solved by the organization of the Central Tri-State Medical Society, composed of the physicians of the three districts which center at Ashland, Ironton and Huntington, which, for all practical medical and health purposes, constitute one municipality. No district society has commanded better talent in its programs. For example, at its recent January meeting, such names as Doctors William Gerry Morgan, the popular President of the American Medical Association; Hugh Cabot, Samuel G. Gant and A. B. Moore, form a quartet that would be worth traveling miles to hear. This Society is now being conducted under the presidency of Doctor J. W. Kincaid, a former President of the Kentucky State Medical Association and for many years the Councilor of the Ninth District.

The Journal takes a great deal of pleasure in assuring Doctor Kincaid and his associates of the continued interest of the Kentucky State Medical Association in this splendid development.

### TRI-STATES MEDICAL ASSOCIATION

In the advertising columns of this issue of the Journal will be found the announcement of the Forty-Seventh Annual Convention of the Tri-States Medical Association of Mississippi, Arkansas and Tennessee, which will be held at the Peabody Hotel in Memphis, February 17th and 19th, 1931.

Every physician in Kentucky is cordially invited to attend this meeting, and by going over the list of the speakers, you will readily realize its value.

Dr. A. F. Cooper, of Memphis, Tenn., would be very glad to mail a complete program to any one who desires to attend this meeting, upon request.

## DOCTOR WILLIAM A. JENKINS

It is with profound regret that we announce the death of Doctor William A. Jenkins of Louisville. This gentle, modest friend of Kentucky was probably the most widely known medical scientist in Kentucky. He was truly a great practitioner of medicine, humane, considerate, frank, he was a painstaking and accurate diagnostician and a thoroughly practical practitioner of medicine. His long experience had given him rare qualifications as a teacher. His addresses were not only scholarly, they were so clear and definite that it was easy to follow him and any practical physician who listened to him could easily follow his line of thought and acquaint himself with his methods.

Doctor Jenkins was a tower of strength in medical organization. He was one of the constructive Presidents of the Jefferson County Medical Society. He rarely missed its meetings. For several years he had been chairman of the Committee on Medical Education of the Kentucky State Medical Association and his reports were read with interest and appreciation by medical educators everywhere. He was a frequent contributor to current scientific publications and he leaves behind him a long list of scientific contributions which are of the first order.

Doctor Jenkins left us in the prime of his life. He leaves us richer for having known him. His was a rare friendship. Always loyal and considerate, he never failed to express his convictions and to impress his ideals upon his friends. He was kindly critical, but his criticisms were always constructive. His memory is gratefully recorded in the archives of the profession which he honored and will serve as an incentive to those of us who are left to do more effectively those things which are yet to be done for the promotion of scientific medicine and the development of the Healing Art.

## U. S. POSITIONS OPEN

Positions as Medical Officer in the United States Civil Service are announced as open until June 30, 1931. These include positions in the Departmental Service Veterans' Bureau, Public Health Service, Indian Service, Coast and Geodetic Survey, and the Panama Canal. In the latter openings for civilian physicians are few and infrequent.

Applicants for the United States Public Health Service must be between the ages of 23 and 31, and they must have had at least one year's internship. It was announced that "on account of the needs of the service, papers will be rated as received and certifica-

tion made as the needs of the service require."

Any of our physicians who are interested in this subject can secure full information and application blanks by writing to the United States Civil Service Commission, Washington, D. C.

## SCIENTIFIC EDITORIAL

## THE CANCER PROBLEM

Cancer is the most mysterious and distressing disease afflicting humankind. The primary etiologic factor of the malady remains submerged in obscurity.

Numerous so called cancer cures have been offered to the public, some perhaps honestly, others solely for mercenary reasons. All have been tried and found wanting by the medical profession and the public. Expressed in a few words: "many are called and few chosen," the latter being surgery, the roentgen-ray, and radium introduced in the order named. These three agents, while far from being ideal, have withstood the test of time, and used either singly or in conjunction they are at present the best means known of combatting cancer. The greatest difficulty is in determining the dividing lines representing their respective limitations. The surgeon sometimes undertakes work which might better be performed by the radiotherapist; on the other hand, the radiotherapist sometimes strives to cure lesions which obviously belong in the domain of the surgeon. Fortunately such occurrences are gradually becoming less frequent, and since these agents constitute the methods of choice, it is hoped that a still better understanding may soon prevail among those who employ them.

Cancer may be roughly divided into two classes: (1) superficial, and (2) deep or internal. The superficial type involves the skin and the mucous membranes in certain situations.

Marked advancing strides have been made during recent years in the treatment of superficial cancer. In the olden days, when patients with horrible, unsightly, neglected cancerous lesions finally consulted the physician, the disease had extended beyond his aid. Such cases are now relatively rare. The work of the dermatologist has become more pleasant and satisfactory, because about 50 per cent of it is now along preventive lines; that is, the removal of cutaneous lesions before they have assumed marked activity. This is due to the fact that we have greater opportunity of detecting early surface changes, and that the physician as well as the public is becoming "cancer-minded."

In cancer involving deeper structures, tis-



sues and organs of the body, the observations applicable to superficial malignancy are obviously impossible for the public; and certainly where the symptoms are latent or trivial, the public and even the attending physician may be unaware of the existence of the disease. Therefore, the results of treatment of cancer of the deeper structures are far from satisfactory. In an effort to overcome these difficulties, physicians and surgeons have striven to improve the methods of diagnosis and observation and thus insure earlier recognition of cancerous invasion.

Certain insurance companies and other organizations have distributed direct to the laity pamphlets containing instructions and educational propaganda to create greater interest in cancer possibilities and to induce people to become "cancer-minded."

It is unfortunate that cancer is an unpopular disease, insofar as public and private contributions and donations are concerned. With our present meager knowledge of cancer, with its prevalence and annual toll of human life, we are making little progress in malignancy involving the deeper structures, partly because it would entail the expenditure of a tremendous amount of money. Moreover, the physician is often handicapped because his patients are unable to pay for tissue and roentgenographic examination, and yet they do not belong in the charity class. These are two of the main reasons, together with our obvious handicaps, why progress has been slow.

It would be a great thing if the state of Kentucky could have a cancer hospital, if only for the benefit which might accrue by making all of us "cancer-minded." The principal difficulty today is that institutions devoted to the study and treatment of cancer soon become so crowded with inoperable and incurable cases that not enough time can be devoted to patients who seemingly have a fair chance of recovery with proper treatment. Cancer hospitals have been established in several states. The plan has been considered especially helpful in Massachusetts where they not only have a "mother" cancer hospital but a number of clinics throughout the state. The operation of the hospital and these clinics entails the expenditure of tremendous sums of money, and people individually do not seem inclined to donate funds for the study of this unpopular but very serious malady.

It would be wonderful if Kentucky could assume charge of such an institution; but unless it could be absolutely divorced from politics, both as regards the medical personnel and all other employes, it would operate under a great handicap.

The fact that the primary cause of cancer remains unknown is our greatest obstacle in perfecting more successful methods of treatment. Another difficulty is that where metastasis has occurred, we are unable to determine with certainty the extent of the metastatic involvement, or even be sure when metastasis occurred.

Probably the most important advance made during the past ten years is the ability of the pathologist, with some degree of certainty, to prophesy the activity of the cell invasion in a given lesion. These cells are typed into four classes, denoting four grades of malignancy.

To summarize the situation as I see it today: our best service to the people consists in helping them to become "cancer-wise" and "cancer-minded." By that I mean to familiarize the public with the possibilities of cancer development, to provide facilities so that the indigent may be examined by competent physicians at a cost within their means and to hope that in the near future someone will evolve a therapeutic measure which will more effectively meet, or possibly prevent, the onslaughts of this mysterious and mortal disease.

WILLIAM J. YOUNG, M. D., F. A. C. P.

**Tribrom-Ethanol as Preoperative Narcotic—**Wood reports her experience with the use of tribrom-ethanol in 25 cases. Most of the patients had had previously bad surgical experiences and dreaded this particular operation greatly. All fear of the operating room was eliminated. Even though some of the patients did not actually fall into a deep sleep, they remember nothing after the injection of the drug. There was a deeper relaxation of the patient than with other usual preoperative drugs. In the patients when ether was used with tribrom-ethanol, only a small amount was needed to maintain the proper level of anesthesia. When nitrous oxide-oxygen was used, a high percentage of oxygen could be maintained and the patients kept pink, while they were sufficiently relaxed for gallbladder, gastric and pelvic surgery, and only two patients required the addition of ether to the nitrous oxide-oxygen sequence. Because tribrom-ethanol does not affect the heart, and because a high percentage of oxygen can be used in nitrous oxide-oxygen mixture, and the patients are never cyanosed, it can be of great value in anesthetizing thyroid patients and patients with myocardial damage. Great care must be used in preparation of the dosage of the drug. With the dosages used, no untoward effects were noted on the blood pressure or respiration. The patients were unanimous in agreeing that it was the best surgical experience they had ever had.

## ORIGINAL ARTICLES

GYNECOLOGICAL TREATMENTS BY  
ELECTRO-THERAPEUTIC MEANS\*

A. DAVID WILLMOTH, M. D.

Louisville

In complying with the request of the programme committee, to address this meeting on the above subject, it is hoped that some thoughts may be presented that will rebound to a more clear understanding of the use of physical energies in the treatment of disorders that affect the female.

Only three decades ago, when little or nothing was known of the pathology of female diseases, and of course, our classification was far from correct, treatment was entirely medical. As surgery made possible, the safe invasion of the abdominal cavity, conservatism of the female generative organs was cast into the discard and their removal became a matter of course for everything.

So common had this practice become of indicting, pre-judging and convicting the female genitalia for all conditions from simple leucorrhea, to the most extensive malignancy, and at one time even mental disorders, that even today, surgery in some form is practically the only hope held out to the suffering woman. Few indeed are those who attempt to relieve the simpler ailments by means other than the knife, or that supposed harmless little instrument, the curette.

The organization of hospitals brought about a concerted effort to require more conservative methods in dealing with the pelvic organs of reproduction. A good and valid reason had to be assigned for their removal or the surgeon was asked to explain his method of treating such cases. Hospitals of today have framed and displayed in the operating rooms, a code of rules that must be followed regulating pelvic surgery.

I would not for a moment try to pluck one star from the firmament of proper and well advised expedient surgery, but will call to your attention, even though the scalpel is fashioned with an understanding mind, tempered with the usual degree of justice, sharpened with intelligent thought, and wielded with the hand of mercy, it must of necessity carry with it a degree of both morbidity and mortality. No indictment is intended for any one in particular, or any class, but here as in any specialty, special work should be some-

thing added to, a broad general knowledge of medicine as a whole.

Even with our present day knowledge, so called medical gynecology, consist in about 90% of cases, in local applications of remedial agents that were in use four decades ago, and are known to be of little benefit at best, and require being used over a long period of time, to accomplish even a small degree of success. Slowly but surely, those energies that offer positive results and have proven their right to a well established field in our armamentarium have forged along until today a physician who professes to be treating gynecological cases, has no moral or legal right to consign a case to the domain of surgery, until they have been given a fair and impartial trial.

Other things being equal if we had several bottles of drugs sitting on a shelf, and we wished to control a certain condition, we would select the one most potent. We should take the same view of these energies and use them whenever they are indicated. We should give them the amount of study to ascertain their physiological action as we would a drug. To advocate their use, does not imply that they will cure everything, no matter how employed, they too, have their limitations, and these should be known.

Since the title assigned the writer covers the entire field of electrical energies, it is necessary that we classify them for study in as simple form as brevity will permit. The only difference in any of the energies is in the wave length given off. We may say that energies are divided into—LIGHTS—visible and invisible, depending on the portion of the spectrum from which they come, and into low, and high voltage currents. The low voltage currents comprising the Galvanic, and the Sinusoidal, while the high voltage covers that group known as high frequency currents, of both the damped and undamped types, static currents, the Grenz or some times called the W-rays, and X-rays. With the above simple yet broad classification, a brief explanation of each will be given as they are considered.

Lights for therapeutic heat purposes, are obtained from the small incandescent bulbs, such as are used for house illumination, or by one large bulb as used in the phototherapy lamps sold to physicians, which ranges in size from 500 to 2,000 watts. They furnish a convenient form of administering heat, that is all, and do not penetrate deeper than heat from other sources.

The commonly used invisible light is either the Air-Cooled or Water-Cooled Ultra-Violet. The air cooled, or near ultra-violet,

\*Read before the Surgical Section of the Kentucky State Medical Association at Bowling Green, Sept. 15-18, 1930.



comprises the wave lengths between 4,000 and 3,000 Anstrom units, therefore systemic in action, while the water cooled burner having the mantle of mercury vapor condensed, permits the shorter wave lengths to come through and comprise those from 3,000 to 1,850 Anstrom units to reach the surface treated. These being known as Far ultra-violet, and are bactericidal in effect. In using the ultra-violet for systemic effect it must be borne in mind that the rays are not absorbed as at one time thought, but act on the Sympathetic and Parasympathetic system, therefore positive in effect for both good and bad results.

#### LOW VOLTAGE CURRENTS

In treating gynecological cases, the low voltage current is the energy most often used. Galvanism furnishing us with the ideal energy for local treatments, it being the only energy which has a polarity, and for this reason the chemical action is easily obtained. Most metals are quickly effected by its use. This is seen daily by going to any of the plants where nickel, gold, or silver plating is done. Plating work is based on the chemical action of the positive pole of the galvanic current on silver, this being the easiest metal to affect, a thought to bear in mind when treating cases, since we are today, thinking of some of the silver salts for our local applications.

The Sinusoidal current is one whose polarity changes so frequent that chemical action from its use does not take place, hence we say it has no polarity, but due to its interruptions is ideal for stimulating muscular activity.

#### HIGH VOLTAGE CURRENTS

Since time does not permit a discussion of the several sources of high voltage, the writer's remarks will be confined to those obtained from the high frequency machines so often seen in the physician's office. High Frequency currents are of two types, *Viz.*: the damped current, being the one delivered by our office machine, and the undamped or sustained current, the so-called cutting current of which we are experiencing a wave of enthusiasm for at the present time. This makes clear the fact that your high frequency machine is not a cutting machine, but the current obtained is one of heat plus its chemical action on the cells of the body in its passage through.

High frequency machines are so named because of the frequency which the condensers charge and discharge the current, these may be in rapidity from a few hundred thousand per second, to many million. Other things being equal, the higher the frequency

the more superficial its action, the lower the frequency the more penetrating.

Our present knowledge seeming to indicate that a frequency around one million oscillations per second being the preferable one for daily use. To this rule exceptions may be made, where two or more million is required as in treating high blood pressure, or ten to fifty million for therapeutic action as in raising temperature, the last type of machine being purely experimental and perhaps not of much real value as temperature can be raised by the smaller type of machine. Many of the present day machines offered us, have a variable frequency, whereby the oscillations may be changed and made to range from the lowest needed to more than two million.

From the high frequency machines three types of currents should be available. The Oudin which is of high voltage and low amperage, the Tesla of medium voltage and amperage, and the d'Arsonval of low voltage and high amperage. Remember that voltage here is a relative quantity, that you can not measure voltage from these machines, do not allow yourself to be persuaded that you are giving a patient several thousand volts when treatments are administered, for you are not.

In gynecology we are chiefly interested in the Oudin and d'Arsonval currents. The first for its desiccating effect on warts, moles, etc., the d'Arsonval for its volume of current which at the same time is so flexible that we can get an amount from the faintest spark, to sufficient volume to destroy large areas of tissue, depending on the amount used and the time applied.

In the treatment of gynecological cases, with electrical energies, the forces that may be released by electrical power within the living human tissues are, chemical, thermic, osmotic, magnetic, and the physiological responses of tissue cells, neurons, muscle fibers, etc., the latter including mechanical effects.

Since time does not permit of further discussion of these energies, neither does it permit of a discussion of the pathology underlying the several conditions for which their use will be suggested. A few of the more common conditions for which patients consult the physician daily will be mentioned for clinical consideration.

No gynecological cases are more frequent than those of Endocervicitis. They are treated for months without much if any real progress being made. Those present are as familiar with the many remedial agents used as the writer, the present day tendency being to use some of the silver salts, and pre-

ferably those that do not stain. Our object in making any local application is to get the remedy not only in contact with the infected tissue, but hope to have it penetrate (which it does not do).

You will recall that we said the galvanic current is a chemical current, and for action on metals the positive pole is used. In endocervicitis nothing can, or does, compare with the treatment of cases with an electrode of copper, copper mercury amalgamated, zinc, or if silver is your choice of medicine, the silver electrode.

The writer prefers the silver or copper, or copper amalgamated, unless the cervix is soft and indications are that making the tissues more firm would aid in cure, then use zinc for its hardening effect. You will find that the copper mercury amalgamated electrode in those infected conditions serve you best, other things being equal. Take the ordinary uterine electrode and with a pledget of cotton moistened with a 10% aqueous solution of Sulphuric Acid, rub the copper tip until you have thoroughly cleansed it of all foreign substances, then dip the tip into a small bottle of quicksilver, allowing it to remain for a few seconds then remove and again use the cotton formerly used for cleansing to smooth the mercury coating and a perfect plating will be had.

Place on the patient's body at any convenient point the dispersing electrode, attach to this the cord from the negative post of the machine. To the uterine electrode, after it has been inserted into the cervix, attach the cord to the positive post. Gradually increase the current until a reading is had of from 30 to 40 milliamperes, 35 being the average. Allow the treatment to continue for fifteen minutes, and all the mercury will be deposited in the tissue of the inside of the cervix. The chemical action on the copper and mercury, forms the mercurate of copper, a very strong antiseptic. The mercury coating acts as a lubricant permitting the easy insertion into the cervical canal. It also prevents the electrode from sticking to the tissues, which happens when the copper alone is used.

Should sticking occur, reverse the polarity of the machine for two or three minutes and the electrode can easily be removed, for the reason that the negative pole softens and liquifies the surface of the tissues and the electrode loosens. Should we desire to remove the endometrium of the cervix (Curetage) use the positive pole with the copper electrode for fifteen minutes, turn down the current to zero and by rocking the instrument for a few seconds it will come away

and bring all the inside of the cervix with it.

If silver is the choice of the physician, use the silver electrode, connecting to the positive pole, but remember it is ionized much easier than copper or zinc, hence 20 milliamperes for 10 minutes will deposit sufficient silver salt in the tissue to give the desired result.

Again in those cases of soft boggy uteri where there is a deficient contraction of the musculature permitting the organ to remain flacid and from which frequent and persistent bleeding occurs, nothing will give the results that the zinc electrode, or copper if you have none of zinc, used in the same manner as heretofore mentioned, except that we must use from 50 to 75 milliamperes and for 20 minutes. Remember the size of the electrode governs entirely the amount of current strength. Two milliamperes per square inch being the maximum load for the galvanic current. This means that we should use the largest electrode we can insert into the cervix or uterus.

Again in vaginitis, by wrapping cotton around the large spherical end of the copper vaginal electrode, making the cotton ball large enough to fill the vagina, saturating this with a 2% solution of copper sulphate, we are able to reach all portions of the vaginal wall and obtain the action of the copper on the infection. Do not use a strength of more than 2%, or it can not be ionized into the tissues.

So far we have been dealing with infections on mucous membranes, along with those of the cervix comes the common erosions so frequently seen in connection with endocervicitis. For these the use of the silver electrode with the cup, will treat both the inside and the erosion at one and the same time. The milliamperes should not be over ten, and for ten minutes twice a week, results are much better than local applications, but are not so good, as had with the high frequency current by the method hereinafter to be mentioned.

#### HIGH FREQUENCY CURRENTS

Women often come requesting something for frequent, and at times burning urination. One of the first things to look for, is that small raspberry growth, emerging from the mouth of the urethra, technically known as caruncle. While these little growths never become cancerous, they are prone to recur after removal. Even after removal and touching of the base with carbolic acid, or even the actual cautery. After trying every means known to eradicate these growths, I began the use of dessication.

By dessication we mean dehydrating the tumor until it is white. To the Oudin ter-



minimal of your high frequency machine attach a cord and run this to a pad placed at any convenient place on the patient's body, or connect it with the autocondensation handle telling the patient to hold this with both hands firmly, but not tight enough to cramp the hands.

With the tumor exposed, with a fine needle inject a few drops of 1% Novocaine, or any local anesthetic at its base and wait five minutes for effect, and with a long pointed aluminum electrode needle such as is used for coagulation that is six or eight inches in length, and two millimeters in diameter held between the fingers of the operator, the needle electrode is brought near enough to the patient's body to permit of faint spark to jump from the patient to the needle. Thus will within a few seconds dehydrate the caruncle and its base, the latter requiring the insertion of the needle into the base near its urethral attachment.

The machine must be set to give only a light spark one-sixteenth inch long, otherwise the current strength will be too heavy. The patient may be allowed to return home, and apply a few warm normal saline applications for the slight irritation that will be experienced for only a few hours. She should be told to report for observation in two or three days, not that anything is going to happen, but to assure her she is getting the proper attention.

Again in the cystic Nabothian glands, which are frequently mistaken for malignancy, the use of dessication such as described for caruncle will cure in one treatment. If the case is not nervous, and will agree to withstand the slight pain, treatment can be done with no preparation. If nervous use a 2% solution of local anesthesia and inject several points around the cervix, and with sufficient current, touch each gland until it is bleached white. The tissue is not destroyed deep enough to cause scar formation and the entire time required to get results is but a few minutes.

No after treatment is needed except a saline douche once a day for three or four days. These patients are also told to report in two or three days for observation. One case will convince the most skeptical as to the merits of this newer concept of management.

Infection of the Bartholin gland so often seen, and in which abscess has already taken place, all are familiar with the repeats if only the gland is incised. To remove the sac, requires a tedious and bloody little piece of surgery, but with a gas anesthesia the sac is opened and its wall dehydrated by dessi-

cation as previously mentioned, being sure to reach every portion of the sac wall, no recurrence will take place, and the entire procedure is bloodless. This can be done the day the abscess is opened, or if pain is severe it can be opened and the case hospitalized, and dessication done the following day. Warm saline packs will hasten repair, and permanent cure result.

Chaneroids, verrucas and condylomas are likewise amenable to this form of treatment, including slight dessication for that troublesome condition of itching of the vulva.

The frequency of Dysmenorrhoea is well known to every physician. The time was, and in the minds of many even today, obstruction held the prominent place as to causes. I have never seen a case where I believed true obstruction existed. It will be remembered that the menstrual flow takes place at the rate of one drop every three minutes, this being true it is certainly hard to believe that any cervical canal is so small it would not permit blood to flow at the above rate. Hence most men doing gynecology today, do not look on obstruction as being a cause, but favor the idea of the condition as being one of congestion, in an organ already sensitive from hyperesthesia. If the desire is to dilate the Os Internum, it can be easily done by using the negative pole of galvanism.

Even the patient herself has from the first inception of her trouble known that heat was her sheet anchor in getting relief. Following this obstruction to its ultimate conclusion, our efforts should be directed along this line. The best known method of heating the parts is with the high frequency current. Use a machine that will not give too high oscillations per second, otherwise the heat is dissipated superficial, and the deeper structures you are compelled to reach to alleviate pain will not be heated to that degree sufficient to get the required results.

750,000 to 1,000,000 oscillations per second should be the frequency desired, and with an anterior-posterior electrode of block tin six by eight inches applied over the pelvic region just above the symphysis pubes, and the other over the sacrum of equal size. The d'Arsonval current starting at zero is increased gradually up to tolerance of the patient, and continued from 20 to 30 minutes. The usual amount of current being from 1200 to 1500 milliamperes. No soap, water, or electrode compounds should be used before applying electrodes to the patient. The treatment should be begun ten days preceding the flow, and given each day, no attention being given the expected

day of the flow, as in many cases this asserts itself while patient is undergoing treatment.

With very few exceptions, vaginal electrodes are not necessary for treating patients with diathermia, and to use them in young unmarried girls, is little short of assault and battery. Once this method is tried viburnum and many other of the so-called uterine sedatives will be all but forgotten.

Destructive Diathermia in the management of cancers of the vulva, vagina and uterus has practically supplanted cutting surgery. Heat is the only agent known to positively destroy cancer cells. If we must remove the uterus, then do it with the cutting current, so also can this be done in those of the vulva. Time will not permit of elaborating on literature calling attention to the superiority of electrocoagulation, over the knife, in gynecology, in major surgery for malignancy.

No paper would be complete unless attention was called to relief obtained with the Air-Cooled Ultra-Violet light in tuberculosis of the peritoneum. This is strikingly seen in cases of salpingitis where we have almost a specific.

Like all other agents used by the physician, a thing that is potent of good, likewise is potent of harm, and a reflection to the following will obviate trouble both to the physician, and the patient.

Never use Ultra-Violet on a case that has been overheated, one from a pellagrous district, or who has had pellagra, one suffering from diabetes, acute nephritis, uncompensating heart lesions, hyperthyroids. Many acute skin lesions are made worse, likewise acute tubercular cases. Never use ultra-violet during the menstrual period.

Diathermia should never be used on a patient's abdomen with a full stomach, one known, or believed to have an ulcer of the gastro-intestinal tube at any point, neither should this energy be applied below the waist line in pregnancy. No case of suspected tubal pregnancy, or acute infections of the pelvis should have the energy used unless drainage has been provided for. This injunction applies to acute tubal infections, which should never have diathermia used on the abdomen during the active stage.

Since the subject assigned the writer is "Gynecological Treatments by Electrotherapeutic Means," the following suggestions seem but fitting to this subject in conclusion. Relative to the use of the local and electrical applications, for the local it may be said (1) They are blind, brutal and dangerous in inexperienced hands. (2) The dosage is

wanting. (3) It is difficult to localize. (4) It has more or less instantaneous action, which ceases generally after its application. (5) It is sometimes sterile, inefficacious, or fanciful. (6) It treats the mucous membrane, but is wanting in direct action on the Parenchyma.

The advantages of the electrical application is, (1) An easy method which any gynecologist can execute alone if he desires. and without help. To this might be added its use by the proper trained technician of today, after full instructions have been given by the physician. (2) A method which is mathematically dosable, which is subject to precise graduation as to effect desired. (3) Progressive effect, not instantaneous and at the will of the operator, so far as amount of action is concerned.

Electrotherapeutic treatments of whatever condition, do not in the least interfere with any medical care the physician may choose to administer. Once these energies are understood, and used, many cases now trying in their management will become easy of control.

#### DISCUSSION

**F. P. Strickler, Louisville:** I haven't had anything like the experience with this subject that Dr. Willmoth has had. As a matter of fact, I think he has had more experience with it than anybody I know of in Louisville. I have used the Oudin current for moles and small tumors. I have used the radio-knife. I think I had the first radio-knife about seven years ago. I find the radio-knife cuts the skin very well and you get good union of skin cases with the radio-knife. It cuts muscle fairly well and fat very poorly. As a matter of fact, fat usually melts, and if you are not very careful you will set it on fire.

So as far as I am concerned with this subject, I am more interested in electro coagulation and desiccation. I think any man who is doing work with any malignancy, or small tumors, or moles will be very well satisfied in using this type of apparatus. I am not at all crazy about the radio-knife. Another thing that is liable to occur in the use of the radio-knife is secondary hemorrhage. You coagulate the vessel and you think you have stopped the hemorrhage. About seven days later you get a slough, and if the vessel is of any size at all you find that you have a secondary hemorrhage.

**A. David Willmoth, (in closing):** Does any one have any questions they want to ask? I will be glad to answer them for you.

**Question:** How far does the effect of the current go in the cervix?

**A. David Willmoth:** If you are ionizing with drugs, it doesn't go beyond the tip of the



electrode but a very short distance, probably about one-fourth of an inch in the average case. If you are using zinc for its hardening effect, if you put the pad on the abdominal cavity in front, or the sacrum behind, then you get a hardening effect of the entire uterus. That is with a positive pole. But it doesn't mean with 15 to 20 milliamperes such as was used on these specimens. It means 75 to 100, given over a period of from 20 to 30 minutes time.

You can take the mural fibroid. I don't mean subperitoneal and I don't mean submucous. Submucous is a contra-indication for that type of tumor, because you might touch the tumor and produce a slough and kill the patient, but with a few treatments you can contract it down until it is as hard as a croquet ball. But it does mean from 50 to 100 amperes and it does mean 15 to 20 minutes, not the light doses that you use for ionization and probably do with zinc electrodes.

**Question:** Doctor, what is the ultimate condition?

**A. David Willmoth:** In many of them it will remain contracted, and many of them you won't have to treat any more. You can at least control the tumor until it becomes operable, where they have a low hemoglobin.

**Irradiated Milk for Nursing Mothers for Prophylaxis of Rickets**—Scheer and Sandels point out that fresh milk, which is intensively irradiated under exclusion of oxygen, in an atmosphere of carbon dioxide, acquires antirachitic properties and the taste and odor remain unchanged. It was found that when from 400 to 500 cc. of such milk was given daily to children with severe rickets, they recovered in from four to eight weeks. An added advantage was that the milk was harmless. Up to now this method of treatment or prophylaxis of rickets was not available for breast-fed infants. Therefore the authors investigated whether the antirachitic factor of irradiated milk could not be transmitted to the child by giving the mother irradiated milk. Premature infants, in whom the early symptoms of rickets, craniotabes, is most noticeable, were fed with milk from wet nurses, who drank daily of irradiated cow's milk. The milk these women was also given to several rachitic rats. Both experiments proved that human milk acquires antirachitic properties if the mother drinks irradiated milk.

## OPERATION FOR VESICOVAGINAL FISTULA\*

JOHN R. WATHEN, M. D.

Louisville

Fistulas between the bladder and the vagina are usually produced from prolonged impaction of the child's head in the pelvis, destroying the vitality of the tissues of the area of compression between the head and the symphysis, rather than trauma due to the use of obstetric forceps. Of late years some have been produced by or followed the more radical surgical operation of Wertheim for cancer of the uterus, but in more recent times the larger number (about two-thirds of all cases) coming to surgical treatment follow the use of radium in the cure of cancer of the cervix. Judd has said, "The apparent complete disappearance of cancer of the cervix after a few treatments with radium is more striking, but these treatments should not be undertaken without considering the fact that a fistula from the bladder may result from the use of radium alone as well as from operation or cautery." The Percy Electric cautery treatment for cancer has also caused many fistulas.

J. Marion Sims, a southern surgeon developed the first and most successful operative technique for their repair, and he was followed by a school of skilled gynecologists as Thomas A. Emmitt, and others who further developed a great perfection in operative methods in such work.

Those cases which follow the use of radium render the technique of operation much more difficult than in the cases which follow childbirth.

Accessibility to the fistula is the thing most desired and the laborious efforts of Sims and his colleagues is no longer needed due to improved methods.

The most valuable surgical contribution is the Schuchardts' paravaginal incision, which seems to place the operator almost directly over the field of the operation.

Another equally valuable principle is the complete separation of the bladder from the wall of the vagina, and this has been learned from doing the Watkins-Wertheim transposition operation for the cure of extreme cases of Cystocele.

Preparatory treatment before operations is time well spent where the tissues are incrustated with salts and a low grade of infection is present.

No gynecologic surgery requires a longer

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apprenticeship than operations of Vesico-vaginal Fistulas.

While with the newer methods by the Schuchardts' paravaginal incisions, most vesicovaginal fistulas can be made visible and accessible and thus allow for proper closure, occasionally we are forced to resort to the supovesical extra peritoneal or the suprapubic transperitoneal operation detaching the bladder from surrounding adhesions in fistulas high up and inaccessible from below. This method was introduced by Trendelenburg in 1890.

If the bladder sphincter has been divided or torn by trauma, it should be repaired as there is great likelihood that it will functionate, but if the sphincter has been destroyed, there is nothing to be gained in operating to close the fistula as the urine will continue to escape.

When the destruction of the bladder and vaginal wall are too extensive, especially some cases following the use of radium for cancer of the cervix, transplantation of the ureters into the sigmoid by the Coffey method or some of its modifications is a justifiable procedure.

We have never been convinced that closing the outlet of the vagina and making it a part of the bladder was a satisfactory method.

Jeff Miller has said "Modern surgery furnishes no more striking illustration of the advance made in plastic technique than is shown in the methods now employed in bladder fistula."

#### DISCUSSION

**F. M. Massie, Lexington:** Dr. Wathen has left very little to be said, except to emphasize two or three things he brought out so well. My own experience is very limited in vesico-vaginal fistula. I have only had three cases. I am not adding at all to what he has said, but I simply want to emphasize what his pictures showed and what he said in his brief paper.

The first is exposure. Sims thought probably his greatest addition to the cure of vesico-vaginal fistula was the exposure through the Sims' position and the speculum which bears his name. These often are not adequate for the high vesico-vaginal fistula, and, as Dr. Wathen says, it is unbelievable the amount of exposure the Schuchardts' incision gives until you try it. You are faced with a long, deep, narrow funnel with the fistula at the apex, and the Schuchardt incision converts it into a shallow saucer, so that you can get at the fistula adequately and expose the bladder on all sides.

The second thing is I believe that the very small fistula do not require so extensive a mobilization of the bladder wall as Dr. Wathen

has suggested. I think perhaps a fifteen minute operation on the small fistula, where the edges are simply freshened and inverted, is preferable to a longer operation of forty minutes to an hour to mobilize the bladder wall; and it usually takes that long even in the best hands.

As Dr. Wathen has said, the greatest advance in the cure of this condition after the work of Sims came twenty years later when Mackenrodt developed the mobilization of the bladder separate from the wall of the vagina. He dissected the bladder wall widely so he could get a good mobilization. That is of the greatest advantage in the cure of these difficult cases.

I was very much interested in Dr. Wathen's pictures, particularly in the one showing Dr. Coffey's technique.

I quite agree with him that in the large fistula, due to radium burn, the only thing to do is the ureteral transplantation, but I have had no experience in this.

**F. P. Strickler, Louisville:** Seeing Dr. Wathen's beautiful illustrations, recalls to my mind looking over some of Dr. Sims' illustrations. I served my internship at the Woman's Hospital, which was founded originally by Dr. Marion Sims before the Civil War. Dr. Sims was quite an artist himself, but his sketches were done in pen and ink, and as he had no water color with which to color his sketches—he was an inveterate chewer of tobacco—he used tobacco juice to stain his drawings. This was also done by Dr. Thomas A. Emmitt, who was a pupil of Dr. Sims and also followed him in his work at the Woman's Hospital. Those records are there at the Woman's Hospital, written in a large ledger like this (illustration) with the illustrations of the operations done by them and stained with tobacco juice at the time they were done. The tobacco was evidently pretty strong because the stain is holding very well.

Dr. Sims was a very remarkable man. He was the first to operate for vesico-vaginal fistula, and he performed the operation on a slave girl. Then he moved North where greater opportunities were offered to him. He founded the Woman's Hospital. When the Civil War came along, he was such a strong Southern sympathizer, he was forced to go abroad. Abroad he operated on the Empress Eugenia, and, incidentally, while abroad he performed one of the first gall bladder operations ever done. So you can see that Dr. Sims was quite a progressive man.

There is one point that I want to emphasize which Dr. Wathen has already very clearly drawn attention to. He has very thoroughly covered the subject. He has left nothing for any one to say about it. That is the mobilization of the bladder. That gives you an excellent opportunity to fold the bladder in and to



close it up, and, if necessary, you can bring the bladder forward to a new part of the uterus, and sew it under the fistula, making another added layer to close it up.

I have had quite a little experience with vesico-vaginal fistula, and I believe it is a thing to go after with a big gun. I think if you go after vesico-vaginal fistula, and don't follow certain steps, you are going to get into trouble. I have tried to suture a few of them just by freshening up the edges, and pulling together, and I had to go back and close nearly every one, because the bladder is a mobile organ. It fills up with urine and puts tension on the suture line, no matter if you do use a retention catheter. That is, it fills up, it stretches, and, therefore, it pulls on the suture line, and it is liable to pull the stitches out. If you can mobilize the bladder and follow the regular routine operation, I believe that your percentages of cures will certainly be much higher.

**W. O. Johnson**, Louisville: When a person knows his subject, so much can be said in a few words, and this is certainly true of Doctor Wathen's paper.

There are three points that I would like to emphasize:

(1) In the preparation of the patient the individual's general condition must be as carefully studied and prepared as for the most serious operation, and the proper clearing up of bladder infection by irrigation, and urinary antiseptics is very important.

(2) Doctor Kelly has said that, "the surgeon either has to go to the fistula or bring the fistula to him in order to properly repair it." The para-vesical incision of Schueckardt's certainly brings the fistula to the operator, and with a wide mobilization of the bladder, proper approximation of edges, I agree with Doctor Wathen that a greater number of these cases can be cured without difficulty.

(3) Keeping the bladder dry after the operation by retention catheter and have the patient keep on abdomen and maintain this position for 2-3 days, irrigation of bladder with small quantities of boric solution every two hours, together with urinary antiseptics, aid in rapid healing.

If the area involved is close to the ureters, but sufficiently far away not to necessitate transplantation, a ureteral retention catheter for 2-3 days is a great aid to drainage.

**Edward Speidel**, Louisville: I would like to ask Dr. Wathen whether he sees vesico-vaginal fistulae due to faulty obstetrics at the present time.

The vesico-vaginal fistula that formed when we allowed the head to remain in the pelvis for such a long time, as formerly occurred, the de-

struction was due to pressure on the head, or on certain areas continued for a long time, and in consequence you had a local well-defined area of necrosis. I should imagine that the repair of a fistula of that kind differs entirely from the repair of a fistula caused by a penetrating agent, like radium.

I venture to say that when the fistula is caused by radium, the penetration extends for quite a distance beyond the outline of the fistula itself, and in order to effect a proper repair, a much more extensive surface has to be brought together than the vaginal fistula caused by obstetric procedure.

**H. A. Davidson**, Louisville: Dr. Wathen has presented a very able paper. However, I hope he hasn't left the impression that an operation for vesico-vaginal fistula is very simple, because if you get hold of one that has been operated on three or four times elsewhere, and there are cervix adhesions, you have a very difficult operation and you not only have to get much space from below to remedy that condition, but frequently you have to go in from above and do a combination vaginal and abdominal operation, to relieve such condition.

You remember that Dr. J. Marion Sims operated on a slave girl a great many times before it was finally cured. So you can get some very difficult vesico-vaginal fistulae, especially those high and near the cervix and I thought, from listening to the Doctor, that he was leaving the impression that the operation was a very simple operation. It can be a very difficult operation, although in some cases, as he indicated, the operation is simple if you get complete mobilization of the bladder.

**George A. Hendon**, Louisville: The phase of this subject which particularly interests me at this time is the manner of healing of these bladder fistulas that have resisted previous efforts and have been classified as the incurable variety. For relief of conditions of that kind, of course, we have the ultra-operation of transplanting the ureters. I believe, when it comes to a question of whether we should transplant the ureters, or sew up the vagina, I think the judgment should always be in favor of the ureters transplantation.

In connection with that particular operation, I wish to say that it has been my observation that we can very much simplify the operation of transplanting the ureters by using large catheters. We can easily put an 18 French in the ureters. In doing a ureteral transplantation, I never use a ureteral catheter. We pass it up into the pelvis of the kidney, and put one or two chromic catgut sutures through the ureter and through the catheter which holds it in position. Drop the ureter and catheter down into the cavity of the bowels and within about six

days, the catgut will give way, perhaps earlier than that. I don't know when it gives way, but the patient will pass the catheter through the bowels at the end of about six days.

This makes the operation very much simpler than it has been indicated. By using the large catheter we do away, to a great extent, with the chances of ascending infection, because the current of the urine is downward, and it is quite difficult for an organism to travel against this current.

Now then, taking the radium fistulae, that usually include the rectum, and which also covers the point brought up by Dr. Davidson of high situation, we are able to deal with those fistulae through the rectum with a great deal more facility than in any other manner.

We have had two recently where there was a large opening communicating between the bladder and the rectum, through the vagina, and by dilating the sphincter muscle, all the space necessary for working would be obtained. We believe that Sims' greatest success depended on the suture that he used more than it did on the skill that he exerted, and which was the silver wire.

The way we deal with those radium fistulae is to make an extensive dilatation of the sphincter ani, and open the rectum widely, and we can go up to the fistula opening and freshen the surface adjacent. You don't freshen the edges of the fistula. Get that out of your mind. You freshen the area that surrounds the fistula. Remember there is a principle in plastic surgery, which is that your success depends very much on the breadth of surface that you are able to bring in contact. That is one principle of plastic surgery that applies anywhere: The wider the surfaces you bring in contact, the more certain you are of success. So that our purpose is not to freshen the edges around the burn, but to freshen the area around it, and then, by using the silver wire, and inverting the fresh surfaces with the mattress suture and fastening the sutures with perforated shot, as Sims did, and allowing their ends to come out through the anal opening, we have lately been able to close two of those fistulae that resisted all previous efforts.

**D. M. Cox**, Louisville: I certainly enjoyed Dr. Wathen's very excellent paper. The position and the type of fistula depends upon the etiological factors. Those following delivery are usually easy to expose. They are close to the urethra and the anterior part of the vagina. Those following the use of radium are usually in the posterior part of the vagina and the third type that I haven't heard mentioned is the occasional one that follows operation, hysterectomy. That type usually is very small and usually heals spontaneously. Occasionally they do not.

The opening in the vagina and the opening in the bladder are not necessarily adjacent in the third type. Quite often they are not adjacent. There may be an inch difference between the opening in the bladder and that in the vagina. Fulguration of the bladder side quite often causes a closure of these cases. If that does not work, an extensive operation from above and below, separating the bladder from the vagina, as Dr. Wathen has very clearly explained, will, of course, take care of this type of case.

**John R. Wathen**, Louisville, (In closing): I just want to thank the gentlemen for their liberal discussion. As applied to obstetrics, I must say that the statistics are fast proving that two-thirds of the cases follow radical operation for cancer, or follow radium treatments. I rarely see them following obstetrical work, and I am sure they seldom occur following a delivery performed by a skilled man.

## THE TREATMENT OF RHEUMATIC FEVER IN CHILDREN\*

ROBERT L. BILTZ, M. D.

Newport.

Rheumatic fever deserves our careful consideration because its accompanying and resultant cardiovascular damage leaves a large number of children handicapped and eventually dependent. We are so accustomed to associate the term rheumatic fever with painful swollen joints, to consider arthritis as the chief and essential feature, and any associated affections of other parts as mere complications, that it is at first difficult to realize that articular inflammation is only one independent manifestation of the rheumatic state. A study of the disease in children leads to a much broader conception. In rheumatic fever of early life other pathologic states appear constantly and must be regarded as direct results of rheumatic activity either in the presence or absence of joint involvement. The most common affections thus associated are tonsillitis, chorea, endocarditis, pericarditis, pleurisy, subcutaneous tendinous nodules and pulmonary infections.

The frequency with which rheumatic infections are preceded by an attack of tonsillitis has been known for many years. Cheadle (1) in 1888 described a rheumatic sore throat of ephemeral character, lasting only from thirty to forty-eight hours, in which there is diffused inflammatory redness and marked swelling involving the pharynx, soft palate and uvula as well as the tonsils. He was not positive of the invariability of this

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reaction and suggested further observation. MacLachlan and Richey (2) examined microscopically the tonsils which had been removed from a series of clear-cut unquestioned cases of acute rheumatic fever and chorea, paying especial attention to the capsular and pericapsular tissues of the tonsils. The endothelial cell response was the outstanding feature in the study, but the authors were not willing to state that it was a specific reaction for rheumatic fever or chorea.

Studies of large series of cases of rheumatic fever bring out the facts that affections other than arthritis may be the first signs of rheumatic invasion and cardiac damage may be present even before the joints are involved. Such a state of affairs calls for careful study of our young patients in order to recognize as early as possible any signs of rheumatic infection and institute the proper treatment. This is especially necessary where there is a family history of rheumatism.

Certain families seem predisposed to rheumatic infection. St. Lawrence (3) found that in 100 families in which rheumatic-cardiac disease existed, there were two or more instances of this in 29 per cent. Faulkner and White (4) observed that in families in which there had been no rheumatic disease the incidence was less than half that which existed in families in which a case of rheumatism had previously occurred. In speaking of heredity Jones (5) says, "this signifies merely that a child's constitution is such that given unfavorable environmental surroundings his inborn tendency thereto is evoked, while in other and more favorable conditions it would not have materialized. The influence then of temperature, humidity, altitude or other environmental factors is truly speaking evocative rather than causative. The liberating stimuli that elicit the latent hereditary bias may be positive, e.g., cold and damp, or negative, as lack of sunlight or vitamins. Hence, the degree to which the influence of heredity can be controlled will depend on the measure of accuracy attained in identifying the evocative stimuli responsible in individual instances."

Whether or not rheumatic fever should be considered a communicable disease is open to question. Reports of contact transmission have not been frequent or convincing enough to cause isolation of all cases. However, Hathaway (6) concludes that rheumatic fever is a communicable disease, and bases his contention on thirty-two cases of acute rheumatic fever among students at the University of Minnesota. Nineteen cases, or 60 per cent, occurred among the relatively small

segregated group of students on the agricultural campus, which comprise less than 10 per cent. of the university enrollment. Twenty-seven cases, or 85 per cent, occurred during the months of January, February, March and April. Boas and Schwartz (7) in reviewing a series of cases, in which the patients have received prolonged institutional treatment, were almost compelled to come to the conclusion that febrile attacks, which occurred in three quarters of the series, were due to contact infection. In 1887 Feltkamp described infection in a hospital ward, and Grenet, during the World War, noted that rheumatic fever was confined to certain regiments. There is appreciable evidence in the literature supporting the view that rheumatic fever may partake of the nature of an epidemic disease.

Before considering the treatment, a review of some of the recent research work will be helpful. Up to the present no specific cause of rheumatic fever has been generally accepted. Micro-organisms were probably first discovered in the blood, heart and joints of rheumatic patients by Popoff in 1887. Since 1900 a great amount of bacteriologic work has been done to establish the exciting cause of rheumatic fever. Practically all work has pointed to various forms of non-hemolytic streptococci as causative agents. Swift (8) in summarizing this work mentions three hypotheses of the etiologic role of streptococci in rheumatic fever: (1) Elective localization, (2) specific streptococci elaborating a specific toxin, and (3) rheumatic fever as an allergic phenomenon. He goes on to state, however, that against elective localization there is evidence that infection may affect many structures, and is practically as widespread as syphilis. Small's hypothesis of the specific streptococcus as the cause of rheumatic fever rests on the recovery of indifferent streptococci in the blood cultures from a few patients with the disease, and on the beneficial action of an immune serum and vaccine prepared from them. This, however, does not allow for the possible role of other types of streptococci recovered from blood cultures or tissues of patients, nor does it take into account the influences of other types of anti-streptococcus serums or vaccines. Hitchcock (9) and Nye (10) have recently shown that indifferent streptococci are found almost as often in the throats of non-rheumatic as of rheumatic persons, and that the organisms recovered from blood cultures belong to different immunologic groups.

I should like to call special attention to the work of Small (11) in isolating a streptococ-

cus from the blood and pharyngeal exudate of patients suffering from rheumatic fever. The organism was called "streptococcus cardioarthritides" and described as a new species on the basis of its distinctive cultural and immunologic character. From this organism three types of therapeutic agents were made. An antiserum was prepared by immunizing horses and later cattle, and then concentrated by the globulin precipitation method to minimize reactions. A vaccine was made and used in treatment, but because of severe reactions has been replaced by a bacteria-free filtrate prepared from suspensions of the microorganisms in normal saline solution. For convenience this filtrate has been called "soluble antigen of streptococcus cardioarthritidis." In order to understand the application of these therapeutic agents, it will be necessary to consider some of Small's hypotheses concerning the causative factors of rheumatic fever.

He considers three methods of attack, either singly or in combination, as operating in each case:

- (1) The local effect of the growth of streptococci in the tissues.

- (2) The damaging action of toxins circulating in the blood stream from some focal point.

- (3) An allergic state of the animal organism produced by bacterial products other than toxins.

The difficulty and inconstancy with which streptococci are demonstrated in the inflamed joints suggest that another factor is at work in their production. Small believes that the "destructive" and "proliferative" lesions of rheumatic fever (blood-vessel and cardiac lesions) are caused by the action of a specific endotoxin derived from a particular specific streptococcus and that the exudative lesions (acute arthritis) arise because of the establishment in the patient of a condition of hypersensitiveness or allergy to a protein fraction contained in the streptococci.

About 270 rheumatic patients have been treated with favorable results in a large proportion of cases. Passive immunity conferred by the anti-serum is only of short duration and relapses occur unless an active immunity is established by the administration of a vaccine, or of the so-called "soluble antigen of streptococcus cardioarthritidis." This work is still in the experimental stage and for that reason I shall not attempt to give the details of the administration. Small's work has not been substantiated by other investigators who have isolated several strains of

streptococci from rheumatic patients instead of one specific strain.

The idea of antigenic substances being generated by bacteria when grown in artificial media is not a new one. Schafer (12) of California in 1911 suggested the use of a combination of these bacterial derivatives from several organisms thought to be causative in a given disease. These "polyvalent" preparations called phylacogens have been made for various diseases such as rheumatism, erysipelas, gonorrhea and pneumonia. Favorable outcome has been reported in some cases.

The results obtained in treating cases of rheumatic fever have been very discouraging. So eager are physicians to find a new and effective form of treatment that the advancement of new theories or the discovery of new causative organisms is given enthusiastic reception in some cases where it is not warranted. Unfortunately, however, a specific form of therapy has not yet been discovered which can be accepted without question.

From the onset rheumatic fever should be considered a chronic infection and treated as such. There is a great tendency to relapse and to recur and it has been estimated that 75 per cent or more of children under ten years of age are likely to have an involvement of the heart in the course of an attack of rheumatic fever. Many authorities believe that the heart is involved in all cases, though not necessarily to a degree that presents clinical signs. Reed and Kenway (13) took 281 electrocardiograms on twenty-six patients ill with rheumatic fever and found alteration indicative of involvement of the myocardium in all. For these reasons confinement in bed for a considerable period is necessary. Practically all cases should be kept at bed-rest for at least six weeks after the temperature is normal, even though clinical signs have disappeared. This point cannot be stressed too strongly.

Since Billings pointed out the importance of focal infection in the general etiology of disease, considerable stress has been laid upon the removal of infected tonsils and teeth in rheumatic fever. The efficacy of tonsillectomy has been questioned, but the consensus of opinion appears to be favorable. In 1927 Kaiser (14) reported an analysis of 478 cases of carditis and showed that in 83 per cent. the condition developed before, and in 17 per cent. after tonsillectomy. In 1929, Kaiser (15) studied 439 children with rheumatic fever to determine the relationship of rheumatic attacks to the presence or absence of the tonsils. He found that nearly twice as many children developed the first attack of



rheumatism when the tonsils were still present and that recurrent attacks of rheumatism occurred 10 per cent less often in children who had their tonsils removed after the first attack than in those whose tonsils were not removed. Mitchell and Henner (16), on the contrary, in reviewing the literature on the relation of tonsils to acute rheumatic fever assert "that the present state of knowledge justifies the statement that little is to be expected from the removal of tonsils and adenoids either in the prevention of the occurrence, or in the prevention of recurrence of acute rheumatic fever, and chorea." Unfortunately, foci of infection are present in rheumatic fever which cannot be removed by surgical means, such as the mucous membrane lining of the nose, throat and respiratory passages.

In the treatment of an acute attack of rheumatic fever salicylates still hold an important place. They were first introduced as anti-rheumatic by Strickler in 1876 and have been widely used ever since because of their ability to lower fever and control pain. It is improbable that the salicylates have a germicidal effect in the tissues because of the prompt recurrence of the symptoms if the salicylate is discontinued. Their beneficial effect seems to be limited to the "exudative" or arthritic lesions and the "proliferative" lesions (blood-vessel and cardiac lesions) are not improved. The disagreeable taste and gastric disturbances accompanying the administration of sodium salicylate has led to the introduction of esters and similar compounds which are more or less insoluble, and in which the salicyl radical is bound so as to be liberated only in the intestine or after absorption. These compounds are not superior in effect to sodium salicylate which can usually be given without gastric upset if guarded by alkalis. The improvement in taste in the compounds hardly balances their high cost.

In children large doses of salicylates are unnecessary. In a child of ten years, 10 to 12 grains of sodium salicylate every four hours is usually sufficient. Administration by rectum is rarely indicated. The salicylates should be kept up for a considerable period in gradually decreasing doses to prevent a relapse.

Our aim in treating rheumatic fever is to effect a permanent cure by immunizing and desensitizing patients with vaccines and bacterial products made from the organisms which seem most likely to play a part in the etiology of rheumatism. Warren (17) believes the success in the use of stock vaccines is in direct proportion to the polyvalency of

the vaccine employed. At the present time streptococcic vaccines seem to offer the most hopeful outlook. Swift (8) favors intravenous injections of small doses of vaccine as the best method of producing immunity and desensitizing the patient. This method must be used with caution as the reactions are sometimes severe. When stock vaccines fail, autogenous vaccines are often helpful, but the expense and difficulty of preparation limit their usefulness.

In order to prevent recurrences in rheumatic fever the living conditions of the child should be improved. Treatment in sanatoriums, hospitals and convalescent homes, have all been advocated for rheumatic subjects. McCulloch and Irvine-Jones (18) found that although care in convalescent homes was of immediate benefit to the rheumatic child, it did not lessen recurrences after he went home. These authors emphasize the necessity of removing all foci of infection and of protecting the child against repeated infections of the nasopharynx which tend to produce recurrence of rheumatic fever and chorea.

The assertion that deficiencies or errors in the balance of diet are important factors in the etiology of rheumatic fever in children is more a conviction of faith than a conclusion of reason. Thompson and Edgar (19) undertook to discover whether any important alterations in the blood chemistry could be produced by changes in the diet of the rheumatic patient. One group of children was fed a high carbohydrate diet and another group a high protein diet. Blood chemistry determinations were made before the institution of the diet and after they had been used for about five months. There was no appreciable difference between the two groups and they concluded that diet was of no material importance in either the etiology or course of rheumatic fever.

In closing I should again like to call attention to the importance of keeping rheumatic fever patients in bed for a sufficiently long time after the temperature is normal. At times it is difficult to convince the parents of the necessity of such an extreme measure, although its virtue has been recognized for many years. When Richard Warren was asked in the eighteenth century what was good for acute rheumatism, he answered bluntly, "Six weeks."

#### BIBLIOGRAPHY

1. Cheadle, W. B., Rheumatic State in Childhood, Smith, Elder & Co., pp. 44-45.
2. MacLachlan and Richey, The Histopathology of the Tonsil in Acute Rheumatic Fever and Chorea, Tr. A. Am. Phys. 42: 315, 1927.
3. St. Lawrence Wm., The Family Association of Cardiac Disease, Acute Rheumatic Fever and Chorea. J.A.M.A. 79: 2051, 1922.
4. Faulkner, J. M. and White, P.D., The Incidence of

Rheumatic Fever, Chorea and Rheumatic Heart Disease; with Especial Reference to Its Occurrence in Families, J.A.M.A. 83: 425- 1924.

5. Jones, A. B., Hereditary Factor in Acute Rheumatism, J. St. Med., London, 35: 709, 1927.

6. Hathaway, J. C., Rheumatic Fever: Communicable Disease, Minn., Med., 13: 37, 1930.

7. Boas, E. P. and Schwartz, S. P., Some Modes of of Infection in Rheumatic Fever, Am Heart J. 2: 375, 1927.

8. Swift, H. F., Rheumatic Fever, J.A.M.A. 92: 2071, 1929

9. Hitchcock, C. H., Studies on Indifferent Streptococci: I. Separation of a Serologic Group—Type I; II. Observations on the Distribution of Indifferent Streptococci in the Throats of Rheumatic and Non-Rheumatic Individuals, J. Exper. Med. 48: 393, 403, 1928.

10. Nye, R. N. and Seegal, David, Nonhemolytic Streptococci and Acute Rheumatic Fever, J. Exper. Med. 49: 539, 1929.

11. Small, J. C., The Bacterium Causing Rheumatic Fever and a Preliminary Account of the Therapeutic Action of Its Specific Antiserum, Am. J. Med. Sc. 175: 101, 1927.

Small, J. C., I. Observations Bearing on the Specificity of Streptococcus Cardiarrhritis in Rheumatic Fever and Sydenham's Chorea, Am. J. Med. Sc. 175: 638, 1928.

Small, J. C., Streptococci in Relation to Rheumatic Disease, Med. Clin. N. Am., Jan., 1930, 857

II. The Present Development of the Biologic Products of Streptococcus Cardiarrhritis and Their Application in the Treatment of Rheumatic Diseases, Am. J. Med. Sc. 175: 650, 1928.

12. Schafer, A. F., A Modified Vaccine Therapy, Based Upon the Theory of Multiple Infection and Quantitative Reaction, Bakersfield, Cal., Therapeutic Gazette April, 1911.

13. Reed, W. D. and Kenway, F. L., Value of Electrocardiogram in Acute Rheumatic Fever, New Eng. J. Med. 198: 177, 1928.

14. Kaiser, A. D., Incidence of Rheumatism: Chorea, and Heart Disease in Tonsillectomized Children, J.A.M.A. 89: 2239, 1927.

15. Kaiser, A. D., The Relation of the Tonsils to Acute Rheumatism During Childhood, Am. J. Dis. Child. 37: 559, 1929.

16. Mitchell, A. G. and Renner, George, The Role of the Tonsils in Acute Rheumatic Fever in Childhood, Ohio St. Med. J. 24: 365, 1928.

17. Warren, C. H., The Vaccine Treatment of Rheumatism, J. St. Med. 37: 449, 1929.

18. McCulloch, H. and Irvine-Jones, E. I. M., The Role of Infection in Rheumatic Children, Am. J. Dis. Child. 37: 252, 1929.

19. Thompson, A. P. and Edgar, S. H., The Effect of Variations of the Diet in Rheumatic Children, Arch. Dis.

## DISCUSSION

**James H. Pritchett, Louisville:** Mr. President and Members of the Association: The essayist has covered the subject so thoroughly that about all I can add is to emphasize a few of the many good points he has brought out.

The child thinks of rheumatic fever in terms of pain and discomfort; the parent thinks of it in terms of dollars and cents, but the doctor thinks of it in terms of potential carditis.

We are told that probably a majority of cardiac cases occurring under forty years of age are rheumatic in origin, we can well imagine the importance of this subject.

Age has a direct bearing. While it may occur in infancy, it is rather rare. The age in-

cidence peak probably is greatest or highest between the sixth to the ninth year. Although it has been reported to occur even in infancy, that is rather rare.

If we conclude that the joint involvements in children are as powerful or potent or as numerous as in the adult, we will be disappointed, because we do see a great many cases which are undoubtedly rheumatic fever with but trivial joint involvement, and yet a rather serious heart involvement. We know that the rheumatic germ, whatever it may be, probably streptococcus, has a special affinity for the fibrous and the serous tissues. That is proved by the fact that we have the subcutaneous nodules and deposits in the heart of the Aschoff bodies in carditis.

Cheatele, whom the essayist quoted, states that at least in England, which is not so much true in this country, the appearance of numerous nodules subcutaneously, especially over the elbow, the knee and probably the scapula, at least to him is a death sentence because they invariably mark or note that the heart is seriously involved.

As to treatment, as the essayist so well brought out, probably prophylaxis offers us the best results, because it is then after the first attack that we can get busy, probably change the environments, clothe the child properly, give him better and more food, regulate his exercise and his school hours, remove his diseased tonsils and adenoids, attend to his carious teeth, and establish regular sleeping hours.

As to the attack itself, as we are generally agreed, I think, rest is the sine qua non in the treatment of rheumatic fever in childhood—rest for an indefinite period, it may be weeks; it must be, of course, in bed, and it must be mental rest, rest for the inflamed joint, and most certainly rest for the inflamed heart. We as physicians must impress upon the parent that the child is seriously ill and it may be weeks, probably months, before the child is able to be up and about at his regular habits and back to his school. The laity think rather lightly of rheumatism and sometimes speak in rather slang terms, but we, of course, know the serious consequences which oftentimes do follow in the wake of acute rheumatic fevers. The fact that it tends to recur and the fact that it leaves the heart crippled in so many instances should be a challenge to every doctor in the state in his treatment of rheumatic fever.

Of course, for the joint involvement, the application of some form of heat, some form of rest, whether sandbags or what-not, probably some of your special pet lotions—one is about as good as another, for that matter—does relieve pain. Occasionally codeine must be used,



probably very rarely the use of some simple drugs in the nose and throat to relieve the throat involvement.

**Robert L. Biltz**, Newport: I want to express my appreciation to Dr. Pritchett for his discussion of my paper. It was discouraging in reviewing the literature to find that there has been no panacea discovered for the cure of rheumatic ills. Considerable amount of work has been done and is being done at the present time, especially along the lines of discovering the bacteria that are instrumental in producing rheumatism, but up to the present time, as I have stated, nothing has come to light which we can accept without question. I hope, however, that in the future as this research work continues, we will have some definite therapeutic agent in our hands which will be really of specific benefit in the treatment of rheumatic fever.

### THE PRESENT DAY CONCEPTION OF PULMONARY TUBERCULOSIS IN INFANCY AND CHILDHOOD\*

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There are certain basic facts in regard to pulmonary tuberculosis that have long been known, but the significance of which has only recently been grasped. Chief of these observations is that the foundation for all pulmonary tuberculosis is laid well before the twentieth year of life. The full realization of this concept has led to an intensive study and investigation of childhood tuberculosis: its prevention, detection and treatment, in the hope that such infections may be checked and their evolution into phthisis prevented.

The universality of these infections in childhood and adolescence were everywhere recognized and were considered a necessary concomitant of civilization and irremedial. The present day view is that such infections may be minimized by an adequate tuberculosis program. The oft quoted figures of Pirquet (1) of Vienna first called attention to the prevalence of infection in large cities, and showed 55 per cent of children infected by the fifth year, 81 per cent by the tenth year and 93 per cent by the thirteenth year. It was considered that these figures were too high for American cities, as the conditions were not comparable; but recent observation leads one to believe that they may be duplicated in any of our large cities: in Philadelphia (2) in presumably healthy school children, 38 per cent were infected by the fifth

year, 71 per cent by the tenth year, 81 per cent by the fifteenth year, and 90.2 per cent by the eighteenth year. The incidence of infection in rural communities is considerably less. McCain (3) averaged 22.59 per cent (22.07 per cent white, 27.41 per cent colored) in North Carolina, and Chadwick and Zachs (4) 28 per cent in Massachusetts.

In Louisville, at the Tuberculosis Dispensary, twenty-two hundred and eleven children up to thirteen years of age, 39.8% of whom gave a family history of tuberculosis, revealed 38 per cent positive to the mantoux tuberculin test, the distribution for age being 32 per cent by the fifth year, 37.5 per cent by the ninth year and 43.6 per cent by the thirteenth year. Five hundred and three negro children similarly tested gave a slightly higher incidence of infection, 42.5 per cent giving a positive reaction. Forty per cent were infected by the fifth year, 35.5 per cent by the ninth year, and 48 per cent by the thirteenth year.

In work done in the Ahrens Trade School by Gernert (5) where the ages range from fourteen to eighteen years with an average of fifteen plus, it is interesting to note that out of 182 children tested (with the mantoux tuberculin test) 57 per cent gave a positive reaction. It is not unusual to find widely varying percentage of reactors in different parts of the same city and in different schools located in the same section. In one Massachusetts city there were found 11 per cent reactors in one section and 60 per cent in another. From a summary of the foregoing it is patent that tuberculosis infection is still rife and that a declining mortality rate does not connote a corresponding diminution in tuberculosis infection.

Allergy is indissolubly linked with infection and occurs as soon as anatomical tubercle is formed. (6) The earliest tubercles occur in about fourteen days following infection and from then on the tissues have acquired two new and distinct characteristics, hypersensitiveness to tuberculo proteins and a certain degree of immunity to fresh implantations of tubercle bacilli. There can be no question that infection confers a relative immunity of varying degree and that tuberculosis animals become refractory to reinfection. Krause (7) in following the dissemination of tubercle bacilli inoculated in guinea pigs found that in non-immune animals the bacilli migrated rapidly from the site of first infection. In animals rendered immune by previous infection, it required twenty-one days for bacilli to travel from a second inoculation in the groin to the spleen and thirty-one days for them to reach the lungs and tracheobronchial lymphnodes;

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whereas in non-immune animals the journey is accomplished in three to ten days respectively. The intense tissue reaction, characterized by inflammation and exudation in the allergic animal as a result of previous infection, is responsible for fixing the bacilli at the point of entry and hindering their further progress as well as destroying a moderate number of bacilli at the site, and in the organs in which they finally come to rest.

The debatable point has been as to whether allergy is a necessary concomitant of immunity. It is known that hypersensitiveness waxes and wanes and that tubercles may become so sclerosed or calcified that tuberculo toxins are no longer given off, and in consequence hypersensitiveness entirely disappears. We have children under observation with unmistakable calcified tubercles in the lung that fail to react to eight milligrams of tuberculin. What we do not know is whether immunity fluctuates with allergy. Rich and McCordock (8) are of the opinion that immunity may be maintained in the absence of hypersensitiveness. Some have inferred that a marked degree of allergy is indicative of activity, or a recent infection. There is little to support this view; all we may say is that allergy is at its height. We know nothing as to whether the infective strain may be highly virulent or attenuated, or whether the host is resistant or susceptible. The acuteness of the tuberculin reaction depends in part, at least, on the tolerance of the host. Those individuals with a low tolerance and a high sensitiveness to tuberculin react severely to small doses (.01 milligram tuberculin) whereas those with a high tolerance and a low sensitiveness require large doses to break through their tolerance into the sensitive zone. It is certain that marked allergy, while an expression of a relative immunity, is a menace to the individual in that it is the phenomena that brings about tissue necrosis. Such children then are peculiarly susceptible and should be particularly safe guarded as stress and strain or reinfection is more liable to produce extensive, exudative inflammatory reactions.

The final resting place of all tubercle bacilli gaining entry to the body is lymphoid tissue. In those tissues and organs devoid of lymphoid tissue such as the eye and liver, the bacilli come to rest in the interstices normally occupied by such lymphoid structures. The characteristics of childhood tuberculosis or first infection, whether occurring in child or adult is that irrespective of the channel of infection, whether it be inhalation, ingestion or inoculation, the bacilli find their way to the lung hilum. First infection in the lung always results in involvement in the

tributary lymphnodes in the hilum that drain that particular site. In the primary lesion in the lung, the perifocal inflammatory exudate undergoes absorption and the caseous nodule invariably becomes calcified to form the well known Ghons Primary Tubercle. The tributary hilum lymphnodes become caseous and finally calcify. This is a characteristic of childhood tuberculosis or first infection and is not seen in adult tuberculosis or reinfections of the lung. Adult tuberculosis usually begins in the infraclavicular region or near the apex. The tributary lymphnodes in the hilum are not involved, and healing takes place by fibrosis and rarely by calcification. In all adult tuberculosis there is evidence of a pre-existing childhood tuberculosis or first infection.

There is a common belief that tuberculosis in childhood is a fatal disease—the average physician being prone to give a gloomy prognosis; whereas the converse is true, the immediate prospects as to life are good. There are two mortality rates: the first two years of life and after the tenth year; between two and ten few children succumb to their tuberculosis. The child can well handle his childhood type of infection. It is only deadly when it becomes the adult type. The rising mortality after the tenth year of life seems to indicate that conversion takes place in the second decade as a result of reinfection, either endogenous or exogenous. Rathbun (9) concludes from a study of High School students that the three or four per cent of children who have childhood tuberculosis contribute fifty per cent of the adult type of tuberculosis occurring in the 'teen age. Calcification is not a definite criterion that the lesion is either old or healed or even stable. Dunham (10) has shown that calcification may occur in five months, and that it may be coexistent with caseation. In some children physical signs persist long after all X-ray evidence has disappeared, and all such are to be considered especially unstable.

There is practically no difference in tuberculosis in infancy and tuberculosis in childhood except possibly the mortality rate which has already been pointed out is high for the first two years of life. On this basis we might say that infancy embraces the first two years of life, childhood from two to twelve, and adolescence the 'teen ages. The helpless infant, restricted to the immediate source of infection, the household; furnishes abundant opportunity for frequent and massive implantations of bacilli. The longer such contact continues the more likely the infant to succumb to its tuberculosis. There is possibly an anatomic basis also for the high mortality in infancy, in that the lymphnodes act



as inefficient filters and thus favor the wide dissemination of bacilli; after the second year, they become more compact and are better able to cope with the invading organism. Notwithstanding apparent extensive infection in infancy, many such children show a surprising ability to care for the infection, if they are immediately withdrawn from further contact with the infecting source and placed under ideal hygienic conditions.

In the diagnosis of childhood tuberculosis, we enter a field where in the main the time honored physical signs utterly fail. The sooner the profession learns this, the further along we will be in the control of this disease.

Nutrition is not a factor in its detection for there has been found no greater incidence of tuberculosis in the malnourished child, more often these children are of average weight, and not infrequently overweight children harbour a most serious infection. Cough and expectoration are more likely to be non-tuberculous although extension or reactivation of the lesion may take place in consequence of such frequent colds. Blood spitting is rare, loss of weight negligible, and fever, unless long continued and of moderate degree, of little value. Fatigue, however, is a most important and outstanding symptom; and while common to other ailments, always warrants one in suspecting a tuberculosis infection. In the tuberculin test we have an infallible procedure for the detection of tuberculous infection: a test so simple and invaluable that it ought to be applied to every child coming under observation, and be part of every routine examination. The intracutaneous test of mantoux in dosage of 0.1 milligram will detect most reactors although all contact cases who are negative on the first test should be retested with one milligram (1.0 Mg.). Three hundred and eighty-one children in this series who were negative to the first test were retested and resulted in detecting 66 or 16.8 per cent positives.

The tuberculin test indicates who are infected; it gives no information as to the amount of damage sustained—the latter can only be determined by satisfactory X-ray films of the chest; and should be carried out on every reactor. The extent and character of the lesion will determine the procedures to be instituted. Those children with exudative inflammatory processes require rest in bed until complete absorption takes place; a full nutritious diet and fresh air. Usually three to six months in bed is sufficient to bring about clearing. The average child may show nothing more than a calcified nodule in the lung field, and similar calcification of

varying extent in the lung roots or hilum. Most children will fall in this group, few if any need active treatment, but since we cannot foretell which will develop a subsequent adult type of tuberculosis, it is imperative that all should be placed on a definite regimen. Such children in the absence of symptoms should be permitted to attend school; and the responsibility squarely rests on the Boards of Education to provide suitable open window rooms and rest rooms for these children. They should have a full nutritious diet, and a serious effort should be made to bring up underweight. This gives the child a definite objective and enlists his co-operation. They should refrain from all strenuous exercise and avoid competitive athletics. An abundance of rest is the one single factor above all others that can contribute most to the upbuilding of resistance. A rest period after school of two hours in bed and ten to twelve hours' rest at night are indispensable. During the winter months Cod Liver Oil, drams two to four, after each meal should be given; preferable in tomato or orange juice if the family budget will permit. Cod Liver Oil is both a food and a vitamin bearing substance. Viosterol is useless in my estimation for this purpose.

These children require prolonged observation and periodic examination and repeated roentgenograms of the chest. If one child in the family reacts, all other children should be similarly examined and tested, and an effort be made to determine the source of infection by examining the adult members of the household. This not infrequently proves to be one of the immediate family circle or occasionally a domestic. If the source of the infection is found, further implantation must be prevented by appropriate measures.

From the foregoing it is conclusive that in the control of tuberculosis, a well directed mass attack in childhood is the logical procedure. Health officers and school physicians are ideally situated to institute such measures. To the private practitioners I would urge that every child be considered as a potential case of childhood infection, and the tuberculin test be administered. To avoid needless alarm and anxiety we must impress upon the parents that a positive reaction indicates infection only and not necessarily disease; it means tubercle and not tuberculosis. The number of reactors in a given community offers a good index as to the prevalence of infection. If nothing further were done than to bring up underweight, provide an adequate amount of rest, and forbid all undue exertion, much could be done in thus building up resistance and aiding the child

in overcoming his infection.

#### SUMMARY

1. The foundation for all pulmonary tuberculosis is laid well before the twentieth year of life.

2. Infection in large American cities is comparable to European cities, Philadelphia showing 90.2 per cent infected by the 18th year.

3. In Louisville 43.6 per cent white children examined reacted by the thirteenth year, 57 per cent between thirteen and seventeen. Negro children gave slightly higher figures, 48 per cent reacting by the thirteenth year.

4. Physical signs utterly fail in the detection of childhood tuberculosis.

5. There are no pathognomonic symptoms. The state of nutrition is not a factor, cough and expectoration is more likely non-tuberculous, blood spitting is rare, loss of weight negligible, fever inconclusive. Fatigue when present is an outstanding symptom and always warrants a complete investigation as to the possibility of a childhood tuberculosis.

6. In the diagnosis of childhood tuberculosis, the tuberculin test and roentgenogram of the chest are the only accurate available methods.

7. Intelligent treatment can only be based on a summation of x-ray findings, tuberculin test, and symptoms. It varies from observation only; to complete bed rest all reactors should have a definite regimen as we cannot predict who will and who will not develop adult tuberculosis.

8. In the control of tuberculosis a well directed mass attack in childhood is the logical procedure.

#### REFERENCES

1. Lord Fredrick T.—Diseases Bronchi Lungs & Pleura. Lea & Febiger, 1925. Page 168.
2. Hitherington, H. W. McPhedran, F. M., Landis, H. R. M., and Onie, E. L.—A survey to determine the prevalence of Tuberculosis infection in school children. Amer. Rev. Tuberc.—1929. XX, Page 508.
3. McCain, P. P.—A report of the study of school children for tuberculosis. Southern Med. J., XXII, Page 311.
4. Chadwick, H. D. and Zachs, D.—The incidence of tuberculous infection in school children. New Eng. M. J.—1927, CC, Page 332.
5. Gerntzt, E. R.—Personal communication.
6. Krause, Allen K.—The Anatomical Structure of Tubercle, From Histogenous to Cavity. Amer. Rev. Tuberc.—1927, XV, Page 137.
7. Krause, Allen K.—The Dissemination of Tubercle

Bacilli in the immune guinea pig. Amer. Rev. Tuberc.—1926, XIV, Page 221.

8. Rich, A. R. and McCordock, A.—An inquiry concerning the Role of Allergy, etc. Brill, Johns Hop. Hosp.—1929, XLIV, Page 273.

9. Rathbun, Walter L.—Epidemiological Basis for the Control of Tuberculosis among Children. Trans. National Tuberc. Ass'n.—1929, Page 278.

10. Dunham, E. C. and Smythe, A. M.—Tuberculosis of Abdominal Lymphnodes. Amer. J. Dis. Child.—1926, XXXI, Page 815.

11. Meyers, J. A. — Tuberculosis Among Children—Chas. C. Thomas, 1930.

#### DISCUSSION

**Paul A. Turner, Louisville:** This paper which has been so ably presented by Dr. Miller is a very timely one. It has been only a comparatively short time that our attention has been directed to childhood tuberculosis; in fact, it is only about a year ago that it received its name. I think Dr. Miller's intention in presenting this paper was to call the attention of each individual member of the Society to the new facts that have been established in regard to childhood tuberculosis, in order that you may all give us more assistance in carrying out the tuberculosis program.

He has given a general summary: he has told you the incidence of tuberculosis in childhood. You all know that it is very prevalent. That has been a long established fact. He has told you the mode of entry of the bacillus; he has discussed allergy and immunity, things that really need a lot more study and things that we know really comparatively little about at the present. He has discussed the symptoms, or rather the lack of symptoms; he has told you the physical signs, or rather the lack of physical signs. The Mantoux test, the tuberculin test, and the x-ray he has stressed as important measures in the diagnosis of this disease. He has also told you that it is rarely fatal. There has been a general conception, as Dr. Miller states, that childhood tuberculosis is a fatal disease. It is not. If properly handled, the majority of those cases will get well, and the prognosis is distinctly favorable. It leaves only for me to discuss and comment a little on these points.

First let me give the definition of childhood tuberculosis. This was only devised a year ago by the American Sanatorium Association by a committee headed by Dr. Chadwick, of Massachusetts. They have said that there is so

#### MANTOUX TUBERCULIN TESTS—(White)

Age .....	Under 1 Year	1	2	3	5	7	9	11	13	Total
Positive .....	10	15	34	49	92	148	163	142	188	841
Percent .....	23.2	27.2	34.7	31.	33.7	37.	38.	41.	45.7	38%
No. Tested....	43	55	98	158	273	399	429	345	411	2211

#### MANTOUX TUBERCULIN TESTS—(White)

Age .....	Under 1 Year	1	2	3	5	7	9	11	13	Total
Positive .....	0	0	5	14	18	27	28	40	79	211
Percent .....	0	0	41.6	46.6	38.3	37.5	33.7	39.2	54	42.5
No. Tested....			12	30	47	72	83	102	146	496



much confusion in the different terminology describing childhood tuberculosis that there needed to be some real definition. We have been calling it juvenile tuberculosis, hilum type, and several other designations.

Childhood tuberculosis is a disease manifested by diffuse or nodular lesions associated with tracheobronchial lymph nodes, caused by the primary infection of the tubercle bacillus.

Now what happens? The tubercle may enter the lung and lodge practically anywhere. The primary tubercle is here in the parenchyma of the lung, very rarely at the base, very rarely at the apex. We are not concerned with adult type of tuberculosis at all; it is totally different. As Dr. Miller says about childhood tuberculosis, it puts a seed there, and later on in the teens it may develop into an adult type of tuberculosis.

What happens to that primary tubercle? It can either in a short time absolutely disappear, and not only that, but the patient will become negative to the tuberculin reaction or it may calcify and form what is known as the primary tubercle. It may be encapsulated by a little fibrosis, and then absorb, and this is known as Ghon's tubercle.

Furthermore, from this tubercle there may be an extension and later an infiltration of the lung tissue. It can extend so that it will become a diffuse infiltration of almost the entire lung and may spread to the other side. With a condition like that in childhood tuberculosis, you would think that the child would die within a very short time.

**E. R. Gernert**, Louisville: Since your five minutes are up, Dr. Turner, and you did not get to finish I will start where you left off, with your permission.

In his definition he said it was diffuse or nodular lesions in the lungs and associated with tracheobronchial lymph nodes. You may get your little calcified area out there, (pointing to periphery of lung chart) or your little primary infection may spread and become extensive, forming the diffuse type. In some cases that completely clear up, and in other cases it forms a fatal type of tuberculosis in children. More frequently, however, you get a little localized area of infection which later becomes surrounded with a little fibrous capsule and remains from 0.2 to 0.6 of a centimeter in diameter. Then your caseous center later becomes calcified, never getting to the diffuse stage. You can see how utterly impossible it is on physical examination to try to diagnose an area of tuberculosis of this size, that is, from 0.2 to 0.6 of a centimeter involvement.

I don't mention this to try to discourage physical examination. On the contrary, I want to emphasize it, because it is very necessary that you give these children a thorough

examination to rule out non-tuberculous conditions, such as bronchitis, bronchiectasis, bronchopneumonia, pulmonary abscess, Hodgkin's Disease, enlarged thymus, neoplasms and mediastinal abscess, some of which may not even show on x-ray examination.

Further I want to emphasize the importance of the tuberculin test, the x-ray examination, and re-x-ray examinations. The x-ray examination depends on which stage of the disease you take it is to what you will find. The involvement may be so small or may have cleared up to such an extent that you may overlook it entirely on the x-ray, or you may find an area of caseation out here, (pointing to periphery of lung chart) or an area of calcification, and nothing in your tracheo-bronchial lymph nodes, or the reverse, caseation of calcification here (pointing to the region of tracheo-bronchial lymph nodes) and nothing here. (Pointing to periphery of lung). Then you may take an anteroposterior now of the chest and find nothing, but turn the child around and take a lateral view and find definite calcification of the tracheobronchial lymph nodes.

The density of the shadow cast by the involved tracheobronchial lymph nodes before calcification has taken place may be the same as the blood vessels and the bronchial branches, thereby giving no difference in density. Therefore, in doubtful cases it will be necessary to re-x-ray at various intervals of time, and also in different positions.

I think the tuberculin test has been well covered. Having a positive reaction does not necessarily mean activity. Readings of tuberculin test should be made at the end of forty-eight hours, and a definitely positive reaction is noted by the presence of edema and redness.

I want to emphasize this one point that Dr. Miller brought out in regard to underweight not being a criterion as to the presence of tubercular infection. One hundred and ninety-six children taken from eight grade schools in Louisville were all fifteen per cent or more underweight, and on that basis were given this special examination. Only 26 per cent of the group reacted positively to the tuberculin test, while of 107 taken at random and of average normal weight, 42 per cent reacted positively, giving a higher percentage of positive reactors for average normal weight than the group of underweight.

**James Bruce**, Louisville: We have come to think that von Pirquet's figures taken in Vienna were all too high and did not represent the real status of tuberculosis, but since McPhedrin's figures have come out in Philadelphia, we realize that here in America we have almost as much tuberculosis as they have in Vienna, so it is a very present problem with us.

As to the symptoms of juvenile or childhood

tuberculosis, Dr. Miller has told you that these children rarely have cough; they rarely have night sweats, almost never. Their nutrition may be good. How, then, can you make a diagnosis? What excites your attention and makes you suspicious of the child?

I would say that the outstanding symptoms of juvenile tuberculosis is fatigue. The child who prefers to sit on the sidelines and watch other children play has something the matter with him, and that thing may very well be juvenile tuberculosis. These children haven't the energy, they haven't the strength, they haven't the desire to play; they would rather sit still; they just seem to lack pep and interest. On the other hand, they haven't very much power of concentration; they are inclined to be irritable, peevish, and want things their own way, which, of course, is characteristic of any sick child.

Fever is not high, but usually, or very frequently, there is a low-grade fever, which is a helpful diagnostic point. Persistently fast pulse in a child, if it is correctly observed, is a very helpful thing. Unfortunately a child being a highly emotional creature, when the doctor comes the pulse is always fast, so it is really necessary that that pulse be observed by the mother of the child or by some attendant with whom the child is familiar, otherwise the pulse rate is of no value at all.

The diagnosis of juvenile tuberculosis is a thing which presents a great deal of difficulty. The reaction to the intradermal injection of tuberculin solution is of greatest aid. We usually use the 1:1000 solution, using 1-10 c. c. That gives you a tenth of a milligram. That is not dangerous to use. It is dangerous to use a higher solution, though, in routine work, because some children are very sensitive to it, and if you use a higher solution than that, you may get a violent general reaction and local slough. If the reaction is negative, it is perfectly safe to go to the 1:100 solution, and that gives you one milligram. It is always better to give the two tests if the first one is negative, because, as Dr. Miller has pointed out, about twenty-five to thirty per cent of the positives to the 1:100 are negative to the 1:1000.

Then if you have a positive skin test, the next problem is to find out how extensive is the condition. The x-ray of the chest is the best way we have to find that out. Usually our physical examination of the chest with our fingers and stethoscope is entirely negative, or practically always, but the x-ray will frequently show us a great deal.

Where do children catch tuberculosis? They catch it from somebody in the home environment. People will constantly bring their children to you and when you tell them they have tuberculosis, they will say, "There is no tuberculosis in my family. Nobody has it." That is

just the point. They frequently catch it from servants, from cooks. We all know the susceptibility of the colored race to tuberculosis, and the old family servants that have been in the family for years may have the disease and transmit it to the children.

Also, recently attention has been called to the marked prevalence of senile tuberculosis, that is tuberculosis among very old people. The chronic winter cough that is supposed to be a harmless thing and is so prevalent, is very frequently tuberculous in origin. Those old people do not suffer from it themselves; they will never die from tuberculosis; they have too much immunity, but they can spread and broadcast the organism.

**S. C. Smith, Ashland:** I want Dr. Miller to bring out one point in closing. There has been considerable of discussion about the termination of tuberculosis by fibrosis, calcification and resolution. I want to know if in his observation tuberculosis in children or adults, that is active tuberculosis, terminates by resolution.

**A. McKinney, Owensboro:** I want to call attention of the profession to the way to bring about enforced obedience of children in preventing tuberculosis. One of the speakers who is engaged in health work, I presume, spoke about getting children to bed at early hours. The way to get children to bed at early hours is to retire ourselves at early hours. That is of paramount importance. The day was made for labor and the night was made for rest. We should retire early and get up in the morning instead of lying in bed until nine or ten o'clock. Set the example if you want the children to follow.

Another thing that I want to emphasize here is the vital resistance of the child, which is the main thing in overcoming tubercular infection.

I was glad to hear the proposition brought forth here that underweight was not an indication of tuberculosis. I am sure that that is true.

In regard to milk, I believe in clean, pure milk. It ought to be given to the children; it is the thing they are fed when they are born, up to a certain age. They can live on it. It has all the essential elements of life in it, so to speak. But I do protest against boiling milk for children. I think you destroy the very vital principle in the milk, which is so important to the child. I would never do it. The dairies ought to be observed and the cows ought to be tuberculin tested to see that the milk is all right, and then keep it off the fire. Give them the milk as it came from the cow if you want to develop vitality in the children. It is the main food that they use, or all they use up to a certain time. The vitamins in the milk are most important. Don't destroy them with heat.

**J. T. Reddick, Paducah:** I quite agree with the



doctor who has just spoken regarding the early to bed and early to rise. I believe in that myself, but we can't do it as long as we have picture shows and radios.

**Smithfield Keffer, Grayson:** Dr. Veech has a great mission to perform, but let's raise babies in the future on the mothers' milk. A lot of people say they ought to be weaned at six months. I don't think they should. Maybe they ought to be weaned in six days or in six hours, but I think the doctor is better able to determine that than the mother.

I quite agree about the rest period. I have been enjoying about fourteen hours' rest a day myself in the last year in order to stay alive. It is one of the most delightful things in the world to lie in bed, especially when you are awake; you have so much time to think. I think I have had more rich thoughts since October 1, of last year than I ever had in the same period in my life. I remember when I used to be so busy practicing, how contrary I was when I was up all night. Of course, you fellows who are good-natured may not be affected that way, but I was. This early to bed and early to rise is a mighty good thing, too. If we are going to have a generation of people to follow us who are healthier than we are, we will have to teach them to stay in bed more and run about less.

I read an old book once, based on a lot of facts centered around Bardstown, Kentucky called "Danger in the Dark." It was a book that my grandfather left when he died, and it fell into my hands indirectly. I think it is a pretty wise statement yet to say that there is danger in the dark. Sunlight is the source of light and life. I believe we ought to use the sunlight hours and sleep in the darkness.

If we feed our children the natural food that nature intended them to have, and then pure cow's milk afterward, raw in the country, Pasteurized in the city, we will have a better generation to follow us than we are.

What is the matter with our babies, Dr. Veech, is that they don't get enough mother's milk. We want to give them a good start, and after that the rest is easy.

**Effect of Barium Sulphate Meal on Intestinal protozoa** were examined by Andrew and Paulson protozoa were examined by Andrew and Paulson following their routine barium sulphate meal for periods varying from three to ninety-eight days. The number of certain organisms diminished so that they could not be found for periods varying from none to twenty-three days subsequent to the barium ingestion. They ultimately reappeared; i. e., in no case did the administration of 8 ounces (250Gm.) of barium sulphate effect an extermination of the organism.

## FRACTURES OF THE SKULL\*

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Automobile accidents are, by far, the principal cause of fractures of the skull, and their number steadily increases each year. Falls and industrial accidents also contribute a considerable share, while the remainder are produced by a large variety of causes.

Because of the great number of these cases, and the necessity of correct diagnosis and early appropriate treatment, if we are to lower the still high mortality and morbidity rate, we should be able to correctly estimate the signs and symptoms of fracture of the skull. Many factors must be carefully considered in making a diagnosis of fracture of the skull. It must be borne in mind that severe intracranial injury may be sustained without fracture of the skull and that fracture may exist with little if any damage to the intracranial structures. Should the patient present symptoms of well marked cerebral compression or cerebral concussion, the diagnosis of intracranial injury, naturally, would most likely be correct.

Unfortunately, we are frequently unable to obtain a clear history of the manner in which the injury was sustained and the condition of the patient immediately following. The patient suffers the effects of concussion and shock immediately after the injury. These may be very transient, or they may last for many hours. Symptoms of cerebral compression may develop immediately after the injury, or they may be delayed for several hours. Many times the patient is admitted to the hospital with no evidence of cerebral compression, or, if present, they may be very mild and are detected only after careful examination. In the more typical cases of fracture of the skull, with intracranial injury, the patients are admitted to the hospital in a rational condition complaining of headache, vertigo and vomiting, with slowing of the pulse rate and a rise of blood-pressure, and later may lapse into unconsciousness.

Before discussing this subject more in detail, I would like to report, briefly, a small series of cases which were under my observation between February, 1929, and July, 1930—a period of eighteen months. There are fourteen cases in this series, the patients varying in age from 5 to 58 years, the average being 23 years. Ten were injured in automobile accidents, two in blasting rock,

\*Read before the Jefferson County Medical Society, September 22, 1930.

one by assault, and one was kicked by a horse. On admission to the hospital, four were rational, seven were drowsy but could be aroused, and three were unconscious. The blood-pressure, temperature and respiration rates were not remarkable. Shock was present, in varying degrees, in all but three cases. Blood in the spinal fluid varied from a trace to 3 plus when present, and in two cases the spinal fluid was negative for blood. The spinal fluid pressure was not taken, on admission, in the depressed fractures. All of the patients that were rational complained of headache, some slight and others severe. Nine patients were vomiting on admission; seven, or 50 per cent, had compound, depressed fractures of the vault, four of which extended into the base of the skull. All of the depressed fractures were operated upon and all the patients recovered. Of the fractures that were not depressed, four were of the vault and base, two of the base, and one of the vault alone. All of these patients were treated by the expectant palliative method and all but one recovered. The average hospital days were 21. The patient who died was a man 36 years of age who was struck by an automobile. He was transported 70 miles in an ambulance and reached the hospital three hours after the injury in shock and was profoundly unconscious, with symptoms of marked medullary compression. His blood-pressure was high on admission, but shortly afterward began to decline rapidly, while the temperature, pulse and respiration mounted. He died within a few hours. In addition to the fractured skull, he had a dislocated hip and a fracture of the jaw.

Since intracranial injury may exist with or without fracture of the skull, the determination of the presence or absence of fracture in head injuries should be considered a matter of secondary interest. We are concerned chiefly in making the diagnosis in cases in which there is depression, as all such patients require operation; whereas, only a small per cent of the remainder will need to be operated upon for the purpose of controlling the increased intracranial pressure or hemorrhage. When the depression in the bone can be felt, the diagnosis is, of course, evident. The hematoma that appears soon after the head injury renders accurate palpation of the skull impossible in most cases and, without X-ray evidence, a depressed fracture may easily be overlooked. In most cases of head injury the diagnosis of fracture is impossible without positive X-ray findings; yet many cases are diagnosed as having fracture of the base of the skull without X-ray proof and without signs of injury

of any of the cranial nerves.

The X-ray is of the greatest value in determining the location and extent of the fracture, but a negative report should be disregarded in the presence of other findings indicative of intracranial injury. The interpretation of X-ray findings should be left to experienced technicians. It is in fractures of the base that the greatest skill is required in demonstrating the fracture by X-ray and in differentiating a fracture from the normal grooves of the skull. Occasionally we see cases in which it is impossible to demonstrate a fracture by repeated, careful X-ray examinations; yet, the patient presents the classical symptoms of fracture with extensive intracranial injury. There were three cases in this series in which this was true. One was a man, 56 years of age, who was struck by an automobile and knocked down, his head striking the curbing and rendering him unconscious for a few minutes. On admission to the hospital, shortly afterward, he was drowsy, complained of severe headache, and was vomiting. His blood-pressure was S.120-D.65, temperature 98 degrees, F., pulse 66, respiration 20. The pupils were equal but reacted sluggishly to light and accommodation. There was three plus blood in all three tubes on spinal puncture, and the spinal fluid pressure was moderately increased. The X-ray examination was negative. On the other hand, the X-ray may demonstrate a fracture where there was none suspected. It is my opinion that there are many people with fracture of the skull who never seek medical attention.

With the increase of intracranial pressure, as a result of edema or hemorrhage, cerebral anemia is produced. Should this anemia involve the vital centers of the medulla, they would cease to function, because of lack of oxygen, and respiratory paralysis would result. Hemorrhages and edema obstruct the normal flow of cerebrospinal fluid. The cerebral and spinal subarachnoid systems communicate freely with each other, permitting drainage of the cerebral subarachnoid space by means of spinal puncture.

Spinal puncture is the most valuable diagnostic and therapeutic aid that we have in cases of intracranial injury. When spinal puncture was first used the pressure was judged by the rate of flow. Later, we were enabled to measure the pressure accurately by means of the spinal manometer. The presence or absence of blood in the spinal fluid does not mean that the patient has or has not a fracture of the skull. Positive findings indicate intracranial injury or increased intracranial pressure. Three tubes should



always be used, and unless there is blood in all of them the findings should be considered negative for blood. Only three or four cubic centimeters of fluid should be withdrawn in making this examination. The amount of blood may vary from a few cells to a quantity sufficient to clot on standing. The diagnosis in cases with clear taps may be established by X-ray, operation, or by the presence of cranial nerve injury.

Blood-pressure, taken upon admission, gives very little information. If low, it is usually attributed to shock, and if high it is indicative of cerebral compression. When the blood-pressure is taken and recorded at regular intervals it becomes of value in determining the trend of the patient's condition.

Hematomas of the eyelids vary from a contusion of small size to huge swellings sufficient to close them. They are generally the result of injury to the frontal region, but may result from trauma applied to other portions of the skull. In many cases there is no associated fractures. Bleeding from the nose and mouth is an unreliable sign and is frequently the result of injury to the mucous membrane or one of the bony cavities communicating with the nose. Bleeding from the ear through a ruptured drum is of much more significance. The discharge of cerebrospinal fluid from the ear or nose leaves no doubt as to the diagnosis.

The pupils tend to contract at first, after which they gradually react more sluggishly to light and accommodation. When unequal, the larger pupil usually indicates the side of the lesion. The fixed pupil is always a sign of grave import. Ophthalmoscopic examination of the fundi is of importance and should be made more frequently; but we should not forget that positive findings do not occur until late. Even the preliminary stages of "choked disk" are the result of high intracranial pressure. If the eye grounds are affected more on one side than on the other, generally the cause of the increased pressure will be located on the side showing the greater involvement.

The cranial nerves most often affected are the sixth, seventh and eighth. The superficial reflexes become less and less active as the intracranial pressure increases in severity. The deep reflexes, such as the biceps and triceps, vary greatly, but when positive, indicate involvement of the cerebral cortex. The abnormal reflexes, such as Babinski's reaction, when more pronounced on one side than the other, is significant of injury to the corresponding motor area. The presence of convulsions, weakness or paralysis in various

muscle groups is of great importance in locating the lesion giving rise to these abnormalities. They signify involvement of certain areas of the motor cortex, opposite to the paralyzed muscles.

There seems to be no satisfactory classification of fractures of the skull. Some are sufficiently brief and complete but apply to only certain phases of fracture of the skull, while others are either too brief or too exhaustive in detail.

Vance (1) has shown that fractures follow certain well defined rules. In most instances they extend from the vault downward into the base, though sometimes they extend along the vault instead. In the base, the fracture lines generally select the bed of the fossal between the strong masses of bone that form its boundaries and, for the most part, are directed toward the central point of the skull. The fractures also tend to extend in the direction of the line of violence. They tend also to seek the line of least resistance. An expanse of skull with gradual curvature is less resistant to violence than an area of bone with sharp curvature. The normal suture lines of the skull, especially on the vault, are involved in many fractures because they are naturally weaker than the rest of the bone.

The type of fracture present is of value as to the prognosis and the possibility of complications. The linear or depressed fractures of the vault offer the most favorable prognosis. The compound comminuted depressed fractures, with extensive cortical lesions and associated basilar injuries, are of the most grave prognosis. The effect of injury to the intracranial structures may be either immediate or remote. The immediate are due to laceration, edema and hemorrhage. The remote injuries occur as gliosis, cyst or scar formation, etc.

The treatment of fracture of the skull, with the exception of depressed fracture, is concerned mainly with treatment of the associated brain injury. Within the past few years the treatment has been almost completely changed. Formerly most of these patients were operated upon with a frightfully high mortality and morbidity rate—the deaths being approximately 50 per cent. Under the present expectant palliative treatment, operation is resorted to in less than one-third of the cases, with a mortality of less than 20 per cent.

If there is evidence of shock, the routine treatment of shock becomes the first consideration, regardless of the type and severity of the intracranial injury. When severe, shock may last for several hours, and during this time X-ray, spinal puncture and other

detailed examinations should not be made. As soon as the patient has recovered sufficiently from the shock, a careful examination should be made to determine, as nearly as possible, the severity of the intracranial injury, and appropriate treatment started.

It is at this time that a diagnostic lumbar puncture should be made. Should the intraspinal pressure be increased, it may be safely reduced, but care must be used in withdrawing the spinal fluid that the pressure is not removed more than one-half, as determined by the spinal manometer. Sharpe (2) states that medullary compression will not occur if these precautions are taken. Frequently one tap is sufficient; but, occasionally, several may be required to keep the spinal fluid pressure within normal limits.

The fluid intake should be restricted to 700 or 800 c.c. daily. The withholding of all fluids seems too drastic and may cause acidosis in children and serious complications in adults.

Therapeutic saline dehydration is of value in relieving edema of the intracellular type. It may be administered by means of enemas, three or four times a day, of six ounces of a 50 per cent solution of magnesium sulphate, or the intravenous injection of hypertonic saline solution. Two or three ounces of a saturated solution of magnesium sulphate by mouth, daily, is of value.

Intravenous injections of 50 c.c. of a 50 per cent solution of glucose once or twice a day aids in reducing the cerebral edema.

Restlessness and irritability are usually controlled by luminal. Morphine should be avoided as far as possible. Patients who are unconscious will require special attention as regards their nourishment and elimination.

In about one-third of the cases of increased intracranial pressure, exclusive of the depressed fractures, the expectant palliative treatment as just outlined will not suffice to lower the high intracranial pressure, and it is in these cases that the subtemporal decompression, as described by Cushing, frequently proves a life-saving measure. The operation is a simple one and can usually be done under local anesthesia. Occasionally a bilateral subtemporal decompression may be necessary. Except for elevating or removing depressed bone, or rarely to control hemorrhage, particularly of the middle meningeal artery, operation is not indicated.

Sharpe (2) has emphasized the importance of operation before the patient reaches the period of extreme medullary compression which is characterized by a pulse rate of 50 or below, irregular Cheyne-Stokes respiration, a rising blood-pressure and unconscious-

ness—a dangerous state from which few recover, even with an operation. Following this stage of medullary compression is the stage of medullary edema in which the pulse rate and temperature begin to rise rapidly, the respirations become panting and shallow, and the blood-pressure declines—the stage of medullary collapse or “decompensation.” All of these patients die, whether operated upon or not.

Patients with intracranial injury should be kept in bed for three weeks and after leaving the hospital they should live sedentary lives for several weeks, with daily rest periods. Mild sedatives, such as luminal, for a month or so, will contribute greatly towards the relief of many of the nervous symptoms that so frequently followed head injuries.

McCreery and Berry (3), in a recent report of a large series of cases from one division of Bellevue Hospital, state that 50 per cent of these patients will eventually make a complete recovery, although final abatement of symptoms may not occur until eighteen months or two years after the initial injury. Of the permanent sequelae, vertigo is common but rarely more than an annoyance; headache is common and sometimes quite disabling. Deafness, tinnitus and disturbances of smell and taste are not uncommon, while there is a small group in which the final outcome, though not fatal, is distinctly unfortunate.

#### BIBLIOGRAPHY

1. Vance, B. M., Archives of Surgery, Vol. 14, Page 1023 (Jan.-June), 1927.
2. Sharpe, William, Neurosurgery, J. B. Lippincott Co., Phila., 1928, Pg. 27.
3. McCreery, John A. and Berry, Frank B., A Study of 520 Cases of Fractures of the Skull, Ann. Surg., Nov., 1928, Vol. 88, No. 5, Pg. 890.

#### DISCUSSION

**Sidney E. Johnson:** The roentgenologist, as well as the surgeon, is presented with difficulties in handling head injury cases. The surgeon has a right to expect the roentgenologist to demonstrate a reasonably high percentage of skull fractures. All fractures of any extent can undoubtedly be demonstrated provided the patient is in condition to stand a thorough roentgenray examination. Unfortunately this is rarely the case. The patients are usually so restless immediately following the injury that it is impossible to get satisfactory roentgenograms. There is frequently a great deal of shock, and it is unquestionably better surgery and better roentgenology to sacrifice quality of roentgenography



in order to make the X-ray examination as brief as possible, and with the least possible handling the patient. The amount of brain injury, and not the fractured bone, is the important thing to consider. There may be a great deal of brain injury with no fracture whatsoever. The X-ray examination is of no help to the surgeon in deciding on treatment except in the cases of positively demonstrated depressed fractures. Depressed fractures are the most readily demonstrated, and can usually be seen quite clearly in films of mediocre quality. A negative X-ray report should always be disregarded if there is clinical evidence of fracture.

**Dr. J. Garland Sherrill:** I think the most interesting part of Dr. Aud's paper is the splendid results he obtained in the cases reported. It requires acumen and sound surgical judgment to determine, in fractures of the skull, what patients should be operated upon, and those that should be treated expectantly. Some of these cases are inoperable when admitted. Others must be watched carefully as symptoms may arise requiring prompt operation, and still others may recover without operation.

The results obtained in the treatment of skull fractures are much better at the present time than those obtained prior to advent of the roentgen-ray and before we understood how to relieve pressure on the cerebrospinal system.

Patients admitted with skull fracture giving a history of loss of consciousness lasting a few minutes, followed by unconsciousness, in the majority of instances have cerebral hemorrhage and prompt operation is demanded. In most of these cases hemorrhage is due to injury of the meningeal artery and prompt action is necessary to relieve intracranial pressure.

Dr. Aud used good judgment in handling his cases. These patients require greater care than in any other class of injuries. Roentgenograms should be made to determine positively whether fracture has occurred, when the patient's condition will permit, and great care is necessary in the interpretation of the findings. A seriously ill patient from cranial injury should have a period of rest with as little manipulation as possible until shock has subsided.

The most important feature of skull fracture are shock and damage to the brain and cranial nerves. There may be injury to the optic nerve, the internal ear, the facial nerve, etc., producing symptoms which will guide us very accurately. All this requires careful judgment, careful observation, and careful consideration.

**L. Wallace Frank:** The essayist has so fully covered this subject that there is very little I can add to what has already been said. I would like to emphasize one point that has been mentioned, and that is that the fracture of the skull is not the important thing and that the

treatment should be directed to the associated brain injury. The extent of the fracture is an index of the severity of the traumatism.

Patients with skull fractures should not be operated upon unless there is some definite indication for so doing. All depressed fractures should be elevated. Patients who have definite localizing symptoms, or in cases where intra or extra-dural hemorrhage is suspected, should be subjected to operation. Of course, it goes without saying that all compound fractures of the skull, especially where the brain is presenting, should likewise be treated radically. In these cases the protruding brain should be cut away and care taken that all bony fragments are removed from the brain. In such cases as these care should be taken not to probe too deeply into the brain substances and personally we prefer the gloved finger for such exploration.

All other cases should be treated by the conservative method as outlined by the essayist, namely by the injection of hypertonic glucose intravenously and repeated lumbar punctures. As the essayist has stated, where there is no response to such treatment, as where there is continued rise of the blood pressure, with other symptoms of medullary pressure, I believe that decompression is indicated.

**Gaylor C. Hall:** With reference to special symptoms in fractures of the skull: As Dr. Aud stated in his paper, choked disc occurs very late. When these patients are seen early there is generally no evidence of nerve changes, or there may be just a slight blurring of the disc. The blood vessels of the eye are not affected as a rule, except that the veins may appear larger than usual. In the early stages that is about all we see in fractures of the skull. Later when there is a marked increase in intracranial pressure other signs are noted. One reason why there are so few changes in the eye grounds early is, if the fracture extends through the nose or ear with escape of cerebrospinal fluid, this operates as a partial decompression and there is little or no pressure on the optic nerve.

In regard to bleeding from the nose and ear, particularly the ear, I would urge that the blood be not removed but allowed to dry. By irrigating the ear you are inviting infection and meningitis. Let the hemorrhage strictly alone.

Dr. Walter Parker, of Detroit, who has done a great deal of work along the line, states with reference to unequal degrees of swelling in the nerve heads, that the greater swelling or papillae dura occurs in the eye with the greater intra-ocular tension.

**John J. Moren:** In the May, 1930, issue of the Journal of Nervous and Mental Diseases there is a very interesting and exhaustive article by Fay of Philadelphia on the subject of dehydra-

tion. He shows that by limiting the amount of fluid intake intra-cranial pressure is materially influenced. This investigation was carried on in the study of epilepsy, but he applies the same principles in the treatment of fracture of the skull. There is also an interesting article in a recent issue of the Archives of Neurology and Psychiatry, illustrating the benefits of limiting the intake of fluid. It was a fracture of the skull, the patient was doing nicely when on the seventh day he stole a lot of water and drank it, and very shortly went into a comatose condition. Fortunately they were able to overcome this and the man made a good recovery. Fay shows that the fluid intake has much to do with intracranial pressure. Drainage by spinal puncture is a good procedure and helps to remove the blood. It is thought that the pachionian bodies have something to do with the absorption of cerebrospinal fluid, and free blood seems to damage these bodies, hence the value of removing this blood by spinal drainage.

**Walter I. Hume:** The treatment of skull fractures has undergone marked change in the past few years. Formerly we were inclined to advise immediate operation in certain fractures of the skull, while at the present time we do not.

There are only two or three indications for the decompression operation, the main one being the presence of a depressed fracture, as stated by Dr. Aud. Decompression by means of intravenous medication and spinal puncture, has proven of such value that operation is done much less often than formerly. This change is recent and important.

Dr. Aud will recall that only three or four years ago, when we were working together in the city hospital clinic, our consultations frequently raised the question of this changing attitude.

In view of the increasing accident rate, with a large number of fractures of the skull in the accident list, and because of our changed ideas of treatment, this paper is especially valuable just now. Dr. Aud has well expressed my own views, and I want to congratulate him on his results.

**Guy Aud,** (In closing): I thank the gentlemen for their liberal discussion. I am sure you all realize that, in a short paper, it is impossible to discuss all the phases of skull fracture. There are three points I tried to emphasize in the paper:

(1) The inadvisability of operative intervention in the presence of shock. Doubtless we have all seen patients with skull fracture rushed to the hospital and operated on immediately regardless of the fact that they were in profound shock. The majority of these patients died as the result of a poorly-timed operation. However, some of them recovered in spite of

the operative procedure, and the surgeon congratulated himself on his judgment and skill.

(2) The indications for operation. There is no question but a large number of patients with skull fracture have been subjected to operation without sufficient indications. These patients would probably have recovered under palliative treatment without operation.

(3) Care in hospital during treatment. When the patient is in the hospital under palliative treatment, he must be very carefully watched for symptoms of medullary pressure. Taking the temperature and blood pressure every five or six hours is not sufficient. The blood pressure should be taken every fifteen or twenty minutes, especially if the patient is not improving, to detect the first evidence of medullary compression in time to be of some benefit. If the patient has medullary compression, it may be a matter of only a few hours before he develops symptoms of medullary edema, then it matters not what you do as he is going to die anyhow.

When intracranial pressure is increased, and can not be reduced by palliative treatment, subtemporal decompression is one of the most valuable measures we have. There is considerable muscle in that area to cover and protect the opening, hence we are not apt to have herniation of the brain following the operation. There are many advantages of subtemporal decompression. If the opening is made above the middle meningeal artery, we have an opportunity to control hemorrhage.

There are three things essential in doing a subtemporal decompression operation. We have seen surgeons remove a section of bone one-half inch in diameter without opening the dura and think they were doing a decompression operation. Such a procedure is futile. If we are going to do a subtemporal decompression, we should remove enough bone to accomplish some good, not less than two and a half inches in diameter, and we should always open the dura. Unless this plan is followed we have not done a decompression operation. The dura should be left open. The decompression operation is not indicated unless there is something to decompress. In other words, be sure there is increased intracranial pressure before undertaking a decompression operation.

Hypertonic solutions are particularly valuable in that type of head injury where there is moderate edema or swelling of the cerebral tissues. Dr. Spurling referred to the class of cases in which hypertonic solutions are most useful. If there are definitely localizing symptoms operation should be performed at once, other things being equal. I agree with Dr. L. W. Frank in regard to this feature.

Referring to Dr. Hall's remarks. Choked disc



is not an early sign of skull fracture. Both discs may be involved, but naturally the greatest change will be noted on the side on which the greater pressure occurs. Meningitis is a very grave complication which may follow any type of fracture of the skull.

I do not believe present-day surgeons pay much attention to hemorrhage from the nose and ears in skull fracture. We formerly thought we could sterilize the nose with argyrol. Personally, I cleanse the ear with a pledget of cotton soaked in alcohol.

There is no question that dehydration is of great value, as stated by Dr. Moren. We are now treating the larger proportion of skull fractures by palliative measures.

### SOME PROBLEMS OF RENAL FUNCTION\*

MORRIS FLEXNER, M. D.

Louisville

For years physicians relied on a simple urinalysis to determine whether the kidneys were functioning properly. Operations were performed or delayed, pregnancies terminated or allowed to continue, depending largely on what such a study revealed. It is true patients frequently died from uremia, or a nephritic toxæmia, unexpectedly, either after an operation or a delivery or in the midst of an acute infectious disease, but these deaths were regarded placidly and the blame not shouldered by anyone. "The kidneys could not stand the strain"—was the explanation offered.

In 1912 Rowntree and Geraghty introduced the phenolsulphonaphthalein test for kidney function. While there is no doubt but this test was and is a great boon in determining kidney function, it still does not cover the field completely and when it and the urinalysis alone are relied on, the post-operative results, while definitely better, still showed unexpected renal developments with constant regularity.

Added to these in the next few years came real assistance from physiological chemistry—"blood chemistry"—as we now call it. By means of definite chemical analysis the nitrogenous waste products remaining in the blood could be accurately determined and thus tell how efficient one excretory function of the kidney was.

These three steps are the ones usually employed by conservative physicians and surgeons before subjecting a kidney of unknown function to the strain of a surgical procedure.

But it is because of the fact that surprises are constantly occurring in spite of these studies, and that patients are dying or almost dying in uremia, that I have chosen this topic tonight. It is true at times circumstances force an operation at a period that is not the optimum, so-called "emergencies." Many times the patient would be much safer fighting the battle with the "emergency" with a possible chance to win, than to face an operation with kidneys in such a condition as to almost certainly insure a fatal outcome. This applies particularly to adults fifty years old or over. But on the other hand many patients usually over fifty, with fairly good laboratory reports as regards urinalysis, phenolsulphonaphthalein, and blood chemistry, still continue to do the unexpected.

Possibly our studies are not complete enough or we are subjecting patients to surgery who should be kept under a strict kidney regime until we are certain that the kidney has arrived at its maximum capacity.

Before considering the question of renal function in detail, I should like to discuss briefly a few of the modern physiological concepts concerning the kidney as an excretory organ. According to Elwyn, its function is three-fold. First, to eliminate the waste products of protein metabolism, namely urea, uric acid, creatinin; Second, to help maintain normal volume and composition of the blood. Here the kidney is called upon to excrete the excess of water brought to it by the blood stream or to reduce its output to the minimum when the supply of water is getting dangerously low, as in diarrhea, cholera, etc. Thus the blood volume is kept very close to constant. Third, to help maintain normal acid base relation. The kidney is only one cog in a large wheel dealing with this complex subject, but it has a very important role to play. It excretes most of the inorganic salts consisting of acid and base radicals.

That part of the kidney concerned with the excretion of urine consists of one million units which Braus has called nephrons. The beginning is in the glomerulus and glomerular capsule, the malpighian body; the glomerulus consisting of a mass of capillaries. I shall not go into the details of the circulation at this point, but to recall that the afferent artery going to the glomerulus is larger than the efferent leaving it. Bowman's capsule consists of a double layer of epithelium which forms the blind end of the uriniferous tubule. This is the proximal convoluted tubule, which connects with the descending limb of Henle's loop, to lead into the distal convoluted tubule which leads to the long

\*Read before the Louisville Medico-Chirurgical Society, October 10, 1930.

descending collecting tubule, which ends in the papillary duct going to the calices of the pelvis of the kidney. So much for the bare anatomy. The question as to the method of excretion has been a great field for physiological speculation and research, and while the matter today is not definitely settled it is explained satisfactorily.

Bowman's theory modified by Hiedenhain was to the effect that the glomerulus secretes water and the salts which accompany water in the body as NaCl. The cells of the convoluted tubule and of the ascending thick part of Henle's loop secrete the specific constituents of the urine; urea, uric acid, some salts and at times, water.

Ludwig later tried to place the whole process on a basis of physical forces with Bowman's capsule acting primarily as a filter, urine, urates, salts and the specific constituents all filtering through. In the tubules the filtrate is concentrated by the absorption of water.

Cushing accepts the idea of filtration and absorption of Ludwig. He regards the filtration in the glomerulus as a pure physical process, but believes the cells in the tubules to possess real absorptive power and that the fluid is concentrated as a result of this and not by a passive diffusion. Many factors may enter either of these two processes. The fluid absorbed from the glomerular filtrate consists of a slightly alkaline solution in composition similar to Locke's solution, containing glucose, amino acids, chlorides, sodium and potassium. Urea ammonium, sulphate and phosphate are concentrated, not absorbed. Several factors come into play here, the most important being that the urine can never exceed a certain concentration, namely when the osmotic resistance is equal to the power of absorption, a matter of pure physics. The time the urine stays in the tubules affects definitely the character of the urine. The more filtrate, the less absorption and the more the urine represents the original glomerular filtrate. In marked diuresis only a small amount of absorption occurs.

One large factor which determines the output of urine is the blood pressure. There seems to be a definite relation to increasing blood pressure, vascular dilatation and urinary flow. When the blood pressure falls to 40 mm. of Hg. filtration through Bowman's capsule ceases. Frequently we see cases at first thought to be renal, but later shown to be heart cases, where the output and chemistry improve with better heart action.

Of fundamental importance, it seems to me, is the work of Bainbridge and Beddard. They worked with the frog's kidney, pecu-

liarily suited because the glomeruli here are supplied with blood from the renal artery from the aorta, while the efferent artery of the glomerulus supplies the tubules. After cutting off the renal artery and the blood supply to the glomeruli and keeping the kidney in an atmosphere of oxygen, when the flow of urine had ceased they injected intravenously urea, causing a small flow of urine which contained chlorides, sulphate and urea. The conclusions were that urea is secreted by the tubule.

The question as to the method of the elimination of dye brings up much discussion. There are two opposing schools, one believing that the dyes are excreted diluted through the glomerular capsule and concentrated in the tubules as is urine, and the other believing the dyes are eliminated by the tubules. The work of Richards and his associates seems convincing. They put various dyes into the frog's circulation: indigocarmine, methylene blue, phenolsulphonphthalein, observing the kidney, *in situ*, under the microscope under the light of 1,000-watt Mazda lamp. With a capillary pipette they were able to tap the glomerular capsule and the fluid obtained always contained the dye.

It is the application of all these fine anatomical and physiological investigations to the human being that interests us. The "phthalein" test as done ordinarily is by injecting 1 cc. accurately measured, in a tuberculin syringe preferably, either intramuscular or intravenously. The latter way is more commonly used as the possibility of poor absorption is removed. The bladder is emptied first, one or two glasses of water are drunk and the dye injected. If intramuscularly the urine is collected in two specimens, the first in one hour and ten minutes and the second, one hour later. Intravenously the specimens are collected in fifteen minutes, one half hours, and one hour and hence has its advantages.

There are a number of objections to the test; in the recumbent position the output is normally from 10% to 13% greater than when erect. In severe heart disease with no real renal impairment but only congestion the volume may be under 10%. Normal phthalein and normal blood chemistry have been observed in persons with contracted kidneys who were unable to concentrate their urine over 1010 specific gravity. Finally, Snowden has shown that the output depends directly upon the volume of urine and by forcing fluid before injecting the dye the output can be increased. This is probably the commonest error of interpretation. If the two specimens are very nearly equal in



the amount of dye excreted, renal insufficiency exists.

The three tests upon which we should rely much more than we commonly do, I believe, are the dilution and concentration tests, and the "2-hour specific gravity fixation test." One of the reasons they have been neglected is probably because they are so simple and easy to interpret and in medicine we frequently regard the simple with suspicion.

The first two tests were introduced by Volhard. In the dilution test the patient empties his bladder in the morning and then on an empty stomach drinks 1500 cc. of water or very mild tea within one half to three quarters of an hour. He stays in bed and voids every half hour. Normally this water is eliminated in two or three, or at the latest, four hours. The volume of each specimen is measured and the specific gravity taken. The specific gravity is low, it may reach 1002 or 1001. With renal insufficiency the various samples are more uniform in character and there is not the rapid rise of the diuretic curve as in the normal. The severer the insufficiency the smaller the half hour sample and the more alike the samples. Edema, sweats, diarrhea and fever interfere with the test.

The second, or concentration test, may follow the dilution test immediately. Four hours after the 1500 cc. of fluid the patient has a dry lunch and no fluid from then until the next morning, the urine being collected every two hours. Normally the specific gravity rises rapidly to 1030 or more. With renal insufficiency the specific gravity of the individual sample does not rise very much and the quantity tends to become uniform.

Fishberg objects to Volhard's method of doing the two tests in the same day. About 6 p. m. of the day before the concentration test he allows the patient to have his usual supper with not more than 200 cc. of fluid, but a little more protein than usual. After this he neither eats nor drinks until the test is over. He discards his bedtime urine as well as any passed during the night. He collects the a. m. specimen, remains in bed, and collects two other specimens at one hour apart. He has sixteen hours to concentrate with little inconvenience. The specific gravities of the three specimens are determined and the renal function judged accordingly. If the concentrating power is normal and the water secretion impaired the defect is extra-renal in origin, such as cardiac failure or edema. Of the two the concentration test is the most reliable.

In the "two-hour specific gravity fixation

test," the patient may be allowed his normal dietary or if in a hospital given an accurate test meal such as suggested by Mosenthal. Normally in the specimens collected two hours apart there will be a variation of the specific gravity of 10 points or more. The night urine is collected as one sample. The daily intake and output of salt, nitrogen and fluid, balance each others. The night urine is high in specific gravity, at least 1016, usually 1018 or higher.

Where insufficiency is present there is a prolongation of the time it takes to eliminate the fluid, giving an increase in the quantity of the night specimen. There is a lessening of the variation of the specific gravity with a tendency toward fixation of the specific gravity, and salt and nitrogen are retained. As I said before, this can be done on the normal dietary in the home as well as in the hospital, but the facts derived from a test meal as suggested are certainly more valuable.

These three tests are simple, can be done anywhere and give information of great value. The urea concentration test of Maclean and DeWesselon need be mentioned only in passing. It is an excellent test of renal function, but has the disadvantage of two quantitative urea estimates in samples voided and tells nothing that the three tests mentioned above do not tell.

Increase in the non-protein nitrogen in the blood is an indication of renal insufficiency. To determine whether it is absolute or not the protein intake must be restricted as well as fluids. When the N. P. N. has returned to normal and stays there, increasing only after renewed protein intake, the extent of the insufficiency will be determined. When, however, the N. P. N. remains on a very restricted protein intake, and the specific gravity remains low and fixed, we appreciate that we are dealing with a failing kidney, in which the secretory function of the glomerulus as well as the absorptive force of the tubule is diminished. Urea under normal conditions makes up 35% to 55% of the total N. P. N., but in conditions in which the N. P. N. reaches high figures the urea may compose 70% of it.

To recapitulate somewhat: Normal kidneys can excrete an excess of water in a certain minimum of time, they are able to concentrate the urine to a certain maximum degree and are able to eliminate the nitrogenous waste substance under all conditions of protein intake. When kidneys cannot do these three things they are regarded as insufficient. The function of excreting waste substances, being the minimal requirement of

the normal kidney, is last to diminish. When the ability is gone the kidney is regarded as completely insufficient. But long before this stage is reached the kidney will have shown difficulty in handling water excretion as well as difficulty in concentration.

Renal insufficiency occurs when there is a destruction of glomeruli, and, secondary to this, loss of the corresponding tubule. Any conditions that prevent the blood plasma from reaching Bowman's capsule will produce it. This occurs in: (1) acute diffuse glomerulo-nephritis, where the glomeruli are filled with cellular exudate; (2), with general contraction of the small arteries and arterioles in the kidney, such as occurs in reflex anuria from stone in the ureter. In this division I believe should be placed that group of patients who, after any type of instrumentation or operation on the genito-urinary tract, show evidence of renal insufficiency, usually by prompt increase of the nitrogenous waste products, and diminished water excretion; (3), when water is directed from the blood stream to other channels in large amounts the organism attempts to conserve its water by shutting the glomerular capillaries. Cholera and high intestinal obstruction may be mentioned.

Granting that renal insufficiency exists, what can we as clinicians do about it? Can we improve renal efficiency the way we improve myocardial tone and improve the glucose tolerance after removing a load from a laboring pancreas? This depends upon a few factors, the most important being the age, the length of time the disease has existed, and the nature of the disease.

Focal infections play a tremendous role in kidney disease. The appearance of acute glomerulo-nephritis secondary to tonsillitis, scarlet fever, and sinusitis is a familiar picture. The less striking picture is the failing kidney being damaged daily by its task of secreting streptococcic or staphylococcic toxin from diseased tonsils, or chronic sinusitis, or infected teeth, etc. It is essential to "clean up" these areas and relieve the kidney of its dangerous, damaging occupation.

Diet is undoubtedly a help but has probably been over-emphasized in the role it plays. The amount of protein should be kept low enough to just supply the body with its needs, about 1 gm. per kilo of body weight, depending on the occupation. In other words, nitrogen equilibrium must be maintained, because if it is not weakness, emaciation and anemia will appear. Meat soups and condiments are to be particularly avoided. The fluid intake in edema should be limited, but if none is present, even though the concen-

trating power is poor, fluid should not be restricted because the elimination of large quantities of urine under the condition is a protective mechanism. Salt should be restricted if edema is present, but if none exists the diet should be "salt poor" as some believe it plays a part in hypertension.

Physiotherapy has a very questionable use here. Undoubtedly all people with kidney disease do better in warm equable climates, so if possible they should be sent south in winter.

Rest at regular intervals and relief from strain, mental and physical, help as part of the general upbuilding program. These, I think, are among the more important steps to be undertaken in a case of renal insufficiency. Time does not permit me to discuss the details pertinent to each particular type, nor will I mention the few drugs that are of questionable help.

In closing I wish to emphasize the following points:

(1) Probably the best means at present for ordinary use in determining renal function are the dilution and concentration tests, the "2-hour specific gravity fixation test," and the phthalein test.

(2) Nitrogenous waste products do not accumulate in the blood stream until late in the history of kidney disease, chronologically speaking, and at once tell of marked insufficiency.

(3) No one can tell how much a kidney will recover until it has been placed under the best possible hygienic conditions regarding infections, food, fluid and rest.

#### DISCUSSION

**Owsley Grant:** Dr. Flexner and myself have seen an unusual number of patients who developed symptoms of disturbed renal function after simple instrumentation. We have been discussing this matter for a long time. As to kidney function tests, my mind is clear in regard to surgical kidney at the present time, but whether it is right or not I do not know.

I think first of all we must consider the blood urea. Personal experience has shown that patients who have a constantly high blood urea—I am speaking particularly of patients coming under my observation with prostatic obstruction—those patients in whom the blood urea does not descend after drainage, etc., are certainly unfavorable risks. It has been my experience that as high as 20 to 23 blood urea nitrogen makes a favorable type of prostatic case for operation or instrumentation.

Another thing that goes along with this is the phenolsulphonephthalein test. I rely greatly on the P. S. P. test taken in conjunction with the blood test. It has been thought that the P. S.



P. and blood urea ought to go hand in hand in connection with the fluid output. That is not true by any means. I could cite you at least a dozen cases in which the blood chemistry was normal and the P. S. P. test showed an output far below normal. We were taught that, in such cases, the proper procedure was to perform suprapubic cystotomy and the patients would recover function sufficient to permit completion of the operation. That is not always true.

Another important feature in the P. S. P. test is determination of the excretion of dye every half hour. I pay no attention to the P. S. P. output in longer than half-hour intervals. The curve starts within fifteen minutes and should rise to its greatest height in about 2 hours. This curve should be carefully watched and recorded. An ordinary individual the first half hour should excrete 40 per cent P. S. P., the second half hour 15 per cent, third half hour 10 per cent, fourth half hour 10 to 5 per cent. If he excretes the first half hour only 7 or 8 per cent of dye, the second half hour 25 per cent, etc., the case is considered extremely dangerous for operation. P. S. P. tests made at hour intervals are practically worthless to determine the activity of the kidneys.

In regard to the concentration test: We do not handle this quite the same perhaps as medical men do in our preparation of the patient for surgical work on the prostate where the kidney has to be considered of more importance than the prostate. In these cases we have the intake and output measured and the specific gravity taken twice daily. If the specific gravity varies in the morning and afternoon, we consider that the patient has reached the stage where renal function is seriously impaired. If the specific gravity is the same morning and afternoon, with 2500 or 3500 cc. of urine daily, we consider that the patient has reached the limit of his urinary output. If in addition the P. S. P. output and blood chemistry are not far from the normal limits, we consider the patient a much better operative risk, than where the specific gravity varies 8 to 10 points during the day.

Any one who relies on one or even two types of tests or renal function in preoperative preparation of his patient for surgical work on the prostate or kidney will fall into error unless he bears in mind three important things: (1) the phenolsulphonephthalein output, (2) the blood chemistry, (3) the intake and output with changes in specific gravity.

**J. Murray Kinsman:** Dr. Flexner has presented very clearly the present-day status of kidney function tests, as they are regarded from the medical standpoint. Dr. Grant's discussion has been of special interest to me because it pre-

sents some of the problems of renal function from the surgical side, which I think is a little different in viewpoint from the medical, as generally accepted. From a medical standpoint, the concentration test is more important than the phenolsulphonephthalein test at least in this respect: Most men today believe that the earliest sign of renal insufficiency is shown by the concentration test as reflected in the fixation of specific gravity. In hypertension, where there is already possibly some damage to the kidney, it is thought that the specific gravity fixation test is of particular value in detecting this damage.

It is interesting to me to listen to medical students express various ideas as to how the phenolsulphonephthalein test should be made. They usually get matters badly mired up. Many of them will say the urine is to be examined one hour and ten minutes after intravenous injection of the dye and two hours after intramuscular introduction. Some of them say two hours after intravenous injection is preferable to two hours after intramuscular use of the dye. Others state one hour after intravenous is better than two hours after intramuscular injection.

I was interested in hearing Dr. Grant speak of the percentage of excretion of phenolsulphonephthalein in normal individuals. Some men place it at 85 per cent, others say 50 per cent—all of which goes to show there is considerable variation in the interpretation of this test; and as compared with the other renal function tests, from a medical standpoint, it is probably not so satisfactory.

**L. Wallace Frank:** I am interested in this subject largely from the standpoint of surgery, as to what the patient can withstand and what we can reasonably expect from kidneys when subjected to the necessary traumatism incident to surgical procedure. I believe we can come to some very definite conclusions, by a study of the blood chemistry and by the phenolsulphonephthalein test, as to the condition of the kidney prior to the time of operation. We cannot determine to well what the kidney is going to do after it is operated on. We must consider not only the kidney itself but the strain on the myocardium and the effect of hypertension. Prostatic cases, elderly patients who have a perfectly normal P. S. P. output and blood urea, and yet have high blood pressure, are very poor surgical risks, because following operation the blood pressure declines, kidney function decreases, and urmia may supervene. I have seen a number of cases of this kind, not only in prostatics but in cases in other types of surgery where the surgeon had not convinced himself of the relationship between the heart and the kidney. Kidney function depends on blood

pressure. So long as the pressure remains high kidney function will be all right. When the pressure declines kidney function will be reduced. The problem is not so much evaluation of the kidney function, as it is to obtain some definite idea as to what the heart is going to do after we operate in the patient.

**Louis Frank:** Dr. Flexner's paper reminds us of the vast difference in preparation and study of the patient at present before undertaking operative procedure compared with twenty years ago. We were then content not only from the standpoint of medicine but also of surgery, to read the findings of chemical and microscopic examination of the urine, specific gravity, etc., to satisfy ourselves of the safety for operative procedure. It has been only within the last fifteen years that our attention has been called to the importance of careful study of the chemistry of the blood and of kidney function prior to surgical treatment. I had the pleasure of being partially responsible for this in connection with some work Dr. C. W. Dowden and myself did at the time of the outbreak of the late war. This has become so evident that now it is almost unpardonable to undertake any major operation, or open any kind of surgical procedure, without study of the blood chemistry and ascertaining the kidney output, particularly in individuals more than forty years of age, no matter what the clinical and ordinary laboratory findings might show. As a result of these newer methods of investigation we have found many patients who, under the older plans of examination and study would have been considered inoperable, can now be subjected to operation with comparative safety. Probably the newer methods of anaesthesia have had something to do with the results and have brought to operation a large class of individuals who may have damaged kidneys, and yet today can be operated on safely. When spinal anesthesia is more generally used I believe we will be able to operate on a greater number of these patients than we have in the past.

I have been very much interested in the question of calculous anuria. A few years ago I had the opportunity of seeing quite a number of cases, all coming under observation within a short time. If I mistake not, I performed the first operation for calculous anuria in Louisville. The patient was in the hospital three or four days before being operated on, while I was arguing with local surgeons and medical men, and finally after consultation with a very capable man in Chicago, the patient was operated on by doing a decapsulation, and placing a tube in the pelvis of the obstructed kidney. The patient made a satisfactory recovery. Following that I saw a number of other cases and did some experimental work to determine what took

place, and I think that was the first work undertaken along that line. Since then a tremendous amount of work on these cases has been done, studying the kidney microscopically and otherwise, and verified our findings. We found that when the kidney was obstructed it rapidly became larger and urine accumulated on that side, but as soon as the blood pressure in the kidney was equalized by the accumulation and subsequent pressure urinary excretion ceased. The other kidney then rapidly enlarged. In every animal we destroyed we found the kidney on the opposite side very much enlarged. We clearly showed the cause of the anuria was absolutely a mechanical proposition. Degenerative changes occur in the glomeruli and there was a transitory nephritis but the kidney remained permanently enlarged. The blood vessels are larger than they would otherwise be in animals of the same size. Congestion is tremendous and the arteries becoming practically occluded as a result of a congestion. By doing decapsulation kidney function would improve on that side although the circulation had practically stopped on the opposite side, i.e., the side of ureter ligation anuria was never due to purely nervous influence. There is no such thing as reflex anuria, it is always mechanical.

## PREVENTION BETTER THAN AN ATTEMPT TO REPAIR\*

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Georgetown.

The men and women of today, were the children of yesterday. The children of today, will be the men and women of tomorrow.

It is a beautiful sight to see so many children gathered together, with life all before you. It is the conservation of your health and the protection of your body against diseases that I wish to speak to you this afternoon.

Modern medicine is teaching that prevention is better than an attempt to repair, or cure after the breakdown comes or some disease develops within the body.

To educate the public how best to prevent illness and by indicating to them the best way to build up a strong resistance with reserved vitality, should be the duty of every physician that sickness and suffering may be avoided. Everyone should be familiar with those methods for keeping "physical fit." Such an education will be of greater achievement for the medical profession, more advantageous and beneficial for the public, than all the doses of pills and tonics that can be assembled

\*Lecture before the Great Crossing Public School, November 14th, 1930. By request of the Scott County Health Department



together.

The average medical man of today, desires to see the world free from sickness and suffering. Physicians are earnestly endeavoring to establish better physical bodies by fortifying the system against the inroads of the germs and disease bearing bacteria, with which the world is infected.

Many discoveries have been made for the prevention of sickness as well as numerous scientific methods for the better treatment of many of those heretofore considered, incurable diseases. It is in early life, childhood, that one must begin to lay the foundation for a healthy body. Physical strength and reserved vitality, when acquired in early life, will be of untold value for the individual later in life.

Boys and girls are not encouraged to play football, basketball, baseball and many other indoor and outdoor games and sports, just for the fun of playing. The primary object is to lay a foundation for a strong and sturdy body. Such games not only build up strong muscles, but develop the big muscles so very essential for a strong and healthy body. The lungs are better developed, strength and expansion is secured. The heart is made stronger and the whole system is fortified for better endurance. With such physical exercise there is developed a better coordination of body and mind, which can not be acquired in any other way.

A few parents object to these childhood games, so popular in the school life, for fear of some accident or injury to their children while so playing. It is very true that accidents often happen, but I will guarantee that the boy and girl who has had the advantages of these health building games, will be freer from broken bones and have less sickness in after life, which may not be the good fortune of the ones who are prevented from acquiring this wonderful advantage for health and character building.

Play and work are the necessary methods for developing the 'big muscles' of the body of the boys and girls. I would recommend that every parent place their children in some first-class conducted camp, or if this is not possible then, place the children on a farm during the vacation months. With such an out-of-door life, the diversified work and enjoyable recreation to be found on the farm, they will accumulate sufficient reserved vitality and body resistance, which will protect them against infection during the winter.

Diversified recreation is being recommended for both children and the grown-ups as an important means of physical therapy. Such methods are the best system for preserving the health and fortifying the system against

disease. Parents should encourage their children to work in and out of doors. They should have a better knowledge of their requirements for physical development. This will make the strong and healthy men and women, better morals and greater righteousness.

Patrons of the schools should encourage the teachers to give the boys and girls the most approved methods for physical training. Competitive games is a splendid method for building character. Every boy and girl should have a most thorough physical examination before entering school. In this way weaknesses and tendencies may be discovered and corrected, which if neglected will seriously handicap the child not only while in school, but perhaps all through life. Lack of proper development of vital organs, flattened chest, twisted spines, drooping shoulders, deformed legs and knees, improper matching of the teeth, and many other conditions are responsible for impaired health.

It is an obligation and duty the physicians owe the families in which they practice, by watching for any imperfection in the children and then endeavoring to correct anything which may be detrimental to the children's health or usefulness in life. However, physicians are often misunderstood in such matters. Their advice and suggestions are often interpreted that the doctor is seeking to further his fees, or that there is some mercenary motive. Every conscientious physician has the best interest for the future welfare of his clients, and especially, in the growth and health of the young people.

Careful examination of the children is most necessary, an occasional examination of the parents is equally necessary. All of us as we grow older, need to preserve and build up our reserved vitality, we may need every ounce of it to carry us through some of the dangers which will confront us sooner or later. Frequent physical examination by a competent physician is essential after forty. By such a method many dangers may be checked and disaster avoided.

Many children of the school age are not thoroughly fortified with sufficient vitality and resistance to overcome the many germs and infectious diseases so prevalent in the world. Therefore, some means must be devised by which this tendency may be corrected. Every child before entering school should have a careful examination by the physician, for adenoids, a thorough inspection made of the tonsils, the eyes should be examined for any malformation or defect in sight, inspection of the ears and capacity of hearing noted. Careful examination of the nasal passages for any deformity of the nose

which will impair the breathing. If such examinations are skillfully made many handicaps can be avoided which might impair the usefulness of the child later.

When you plant a young tree or shrub, you surround it with supports to prevent any deformity of the tree in its growth. You desire that tree to be straight and to be a thing of beauty which you may admire for your carefulness in protecting it when it was small. The growth of the child is far more important than the tree, yet many children are permitted to just grow up.

What may we do for those children who have less immunity and resistance against disease, than their more fortunate companions? Careful examination and expert physical training will give marvelous results. The proper selection of food, careful instructions as to the importance of pure air, a thorough knowledge of hygiene and those things which will increase the vitality of the child are essential. There should be given more attention to dietetics in the schools, for the proper use of food has everything to do with proper growth and vitality of the children.

The discovery of prophylactic serums has been one of the greatest benefits in preventing diseases in children. It is the imperative duty of every physician to insist, especially during any epidemic that the children be properly immunized.

This is especially true where there is an epidemic of Typhoid Fever, or where there is low stage of the water as in the present drouth, or where the public or private water supply is known to be contaminated. Under such conditions all of his patients should be protected by the use of the preventive serum for Typhoid Fever. If this Bacterial Vaccine were regularly used by the physicians in practice, there would be very few cases of typhoid fever. Much suffering would be avoided and many lives spared. There is not another disease which will leave so many serious complications and permanent injury as typhoid fever, for this reason every child entering school should have this protection.

The treatment is not severe when properly given and the protection secured is invaluable. The Bacterial Vaccine is given in three doses at intervals of a week or ten days and the immunity is established. All very simple as compared with the danger, suffering and expense incurred with a case of typhoid fever and there is always the possibility that a life may be lost.

A few years ago, over fifty per cent of all cases of diphtheria were lost. Upon the discovery of the Diphtheria Antitoxin, thousands of lives have been saved and the mor-

talidity wonderfully reduced. This has been of untold value and reflects great credit upon the scientific discovery of this marvelous remedy. Now we have come to something still more wonderful, the immunization of the child, which will prevent the spread of this most dreaded disease.

The active immunization of infants and all young children is to be recommended at all times. The best way to avoid an epidemic is to have all the children immunized. An ounce of prevention is worth many pounds of cure. Every child of the school age should be given the immunization treatment for diphtheria. Better every child from six months to six years should be given the immunization 'Toxin-Antitoxin New Formula.

All children within this age limit, show the greatest percentage of positive Schick reaction and the mortality from diphtheria at this period of life is more frequent. I am quite positive in the statement, that every child under six months to six years should have the Schick skin test and every child who is found susceptible should at once be immunized before they are permitted to attend any of the schools.

Such precautions will prevent much inconvenience in the closing of schools and colleges or other public institutions, on account of an epidemic of diphtheria and other contagious diseases.

The dose for immunization is given at weekly intervals. Two injections of each 1 cc. are given. Statistics show that 99 per cent of those who have been immunized show a negative Schick reaction at the end of three months. If there should be a positive Schick reaction at the end of three months, then another course of the immunization treatment should be given. By such a practice, it is possible to produce such an active immunity in every child and individual, that the scourge of diphtheria could be removed forever from the community.

The Schick test is given by interdermal injections with a small amount of Diphtheria Toxin Solution. In the non-immune subjects there is formed a red area at the point of injection, which will remain for several days according to the susceptibility of the individual.

However, a negative reaction does not remove the need for very careful prophylactic precautions, for the subject though giving a negative reaction may be a diphtheria carrier. Every child of school age, who gives a positive reaction for the Schick Test, should be immunized before being permitted to enter school, this must be done, if epidemics are to be avoided, inconveniences and expenses prevented. Such precaution is not only for the



benefit of the individual child, but is for the benefit of everyone in the community.

Upon the first suspicion of diphtheria in a child or an adult, a curative dose of 3,000 to 10,000 units should be given, without waiting for the laboratory report. The delay in waiting for a report from the laboratory has often resulted fatally. Like all serums in treatment the earlier the curative dose is given the more satisfactory the result. It is good judgment to use the curative dose as a routine in every doubtful case, especially where there is a mixed culture present.

Another much dreaded disease is Scarlet Fever. The mortality many years ago was very high and the serious after effects resulting therefrom, was in many cases tragical. Next to Small Pox, Scarlet Fever produces much excitement and anxiousness in every community, for its complications are to be feared.

It is most important that every child of the school age be immunized against this disease. As the child grows older there is less danger of contracting the disease, however, there is a possibility of contracting the disease at all ages. It is for this reason that children should be protected from this disease in early life.

The Dick skin test is made by injecting interdermally one-tenth cc. of the skin test solution into the forearm at the junction of the upper and middle third. A reaction may be expected within twenty-four hours showing the susceptibility of the child. There is one serious danger in reading the Skin Test, if one fails to recognize a slight positive reaction, the slightest redness around the point of injection is sufficient evidence of a positive indication that the child is susceptible to Scarlet Fever, and should be immunized.

The immunization treatment is quite simple and is carried out in the same way as the immunization for Diphtheria, by giving one or more interdermal injections at intervals as indicated by the degree of reaction.

Special care should always be exercised in these treatments that everything is strictly aseptic. If there are any unfavorable results, it is usually the fault of improper procedure, and not the fault of the serum.

Where a child has been exposed to scarlet fever, they should be given at once a prophylactic dose of scarlet fever antitoxin, or one-half dose of Scarlet Fever Therapeutic. In two or three weeks after the prophylactic dose, the child should be further immunized with Scarlet Fever Toxin. The use of a "Prophylactic" dose in those cases where the child has been exposed to scarlet fever, will give immunity for two or three weeks, for this reason it is important to give the prophylactic

laetic dose to every exposed case, it will prevent the spread of the disease to other members of the family.

The immunization of all children with Scarlet Fever Toxin, is a wonderful discovery and will prevent many serious complications which frequently follow this disease.

Immunization against Small Pox, is too well known to need further discussion, however, from the fact that there are some who are indifferent or unduly prejudiced against vaccination, it is well to emphasize the importance of having every child vaccinated. This will prevent out-breaks of Small Pox. An epidemic of Small Pox is a detriment to any enlightened and cultured community. It will stampede the public and is an obstacle to business interests. It is the duty of every physician to see that all children under his care are properly vaccinated. If this precaution is carefully carried out, small pox will be removed from the earth.

Every physician should realize that it is a personal obligation to keep his patients well informed along all lines of preventive medicine. A healthy community gives more credit to the physicians than one that has much sickness and especially, serious epidemics. Prevention may make less calls for pills and tonics, but the physician will receive a better compensation by keeping the people well, than by trying to cure them when sick.

Careful immunization against the various childhood diseases, will prevent serious epidemics and school interruption. All children of the school age should be carefully immunized against many of the prevalent childhood diseases if found to be non-immune.

It is estimated that several millions of dollars are lost every year by workmen and other employees, by the loss of time away from the shop or office on account of the "frequent colds." Every child and adult who has "frequent colds" should be immunized in the early fall by the use of some reliable Sero-bacterine or Bacterine serum for the prevention of "frequent colds."

If this practice is used as routine by the physicians there will be less loss of time and suffering in the winter by the "frequent colds."

In the use of the "prophylactic" cold serum, it is very necessary that the serum carry the protection of the various types of pneumonia. Many colds are produced by local infection from some type of the Pneumococcus.

I have used the "cold serum" on myself and patients for many years, and while like many other things in medicine it is not absolutely perfect, yet it does give immunity in a

large number of cases. The use of the serum renders the susceptible individual less liable to colds and if they should have an attack, it is very much milder and free from complications.

There are many other preventive measures for the betterment of health all of which are of great interest, but I have spoken of the most important as pertaining to school life.

I believe we are entering into a New Era in the field of medicine. In the future there will be greater cooperation between the physicians and the public. There will be better cooperation between the physicians for the prevention of diseases and the welfare of the community. Strife and jealousy between physicians are becoming less, for after all this is brought about by envy of their more progressive neighbors.

The physicians and general public will accept those things which will prevent sickness, rather than to depend upon the use of medicine for cure of illness. Everyone will appreciate that prevention is safer and more thorough than an attempt to repair. By prevention there will not be the necessity for so much surgery. Hospitals will become a place for preventive measures rather than a housing of the sick and invalid. The use of Antibacterial Sera, vaccines and other forms of treatment will give local and systemic immunity.

With proper exercise, diversified recreation and a better understanding of the laws of hygiene, there will be built up such a reserved vitality and strong resistance against the germs and disease carrying bacteria, that sickness will be greatly reduced. Many of the now serious maladies which have disabled the world, will have been removed.

**Tumors Among the Insane.**—Davidoff asserts that most recognized brain tumor cases exhibit some psychopathologic changes which, if analyzed by the neurologist and the neuro-surgeon, might give some suggestion as to the localization of the growth. On the other hand, a certain small percentage of psychotic patients are suffering, undiagnosed, from cerebral tumors that could probably be recognized if the psychiatrist would keep in mind the possibility of such a lesion. These patients may be divided into two groups, (1) those with slowly developing symptoms chiefly of mental deterioration and few neurologic signs, and (2) those with a profusion of neurologic signs in addition to a rapidly disintegrating mentality. The first group usually have slowly growing tumors, meningiomas, for the most part. The second group prove to have rapidly growing gliomas, chiefly glioblastoma (spongioblastoma) multiforme

## RESUME OF GOITRE SURVEY IN EIGHTH GRADES AND LOUIS- VILLE CITY HIGH SCHOOLS \*

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The goitre is a problem that is of fundamental interest to all, and the steps towards a solution of such a problem can best be obtained by a better understanding of its extent in any given locality, together with various associated conditions which occur. Through the foresight of Dr. C. H. Harris of the City Health Department, a survey was made between February 1st, and Mays 1st, 1928, of the girls of the eighth grades and the Louisville City High Schools in order to determine the extent of the adolescent goitre in this locality, and to institute prophylactic measures for the eradication of this disease.

The public school population includes the proper age for examination, and a survey of this group gives a complete study of the age with practically no additional expense and very little, if any, disturbance of the curriculum.

Kentucky geographically is below the so-called goitre belts, but according to reports of the experimental station of the University of Kentucky, there is a definite deficiency of iodine content in the soil and water in this section of the State, though the lack is not sufficient to explain the production of adolescent goitres in this locality. We know that no community or nationality is free from the sporadic forms of endemic goitre, and the important association of these sporadic forms with chronic foci of infection makes an understanding of the problem in any locality of special importance.

There have been only two reported surveys made in the State of Kentucky. Dr. C. W. Chambers, of Lexington, Kentucky, in 1924 made a survey of three thousand, five hundred cases with findings of .32% goitres, and Dr. L. K. Baldauf, in 1925, reported findings on a partial survey in Louisville, in Kentucky Medical Journal. Neither of these surveys have been followed by any prophylactic regime.

In this paper a discussion of the history, etiology, physiology, and pathology of endemic goitre will be omitted, for it is not necessary to present a review of the authentic volumes that have been written on this subject.

We wish to present briefly the findings of the goitre survey made of the girls in the eighth grades and Louisville City High

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Schools, and boys and girls in nine schools examined in Jefferson County, hoping that this may aid in a better understanding of the problem in this County, and by the adoption of a prophylactic regime, be a means of eradication of this disease.

In conjunction with the examination of the thyroids, the teeth, tonsils, chest expansion, percentage weights, individuals born out of State, family history of goitre, together with the use and non-use of iodized salt were recorded in each case with little additional trouble, in the hope that these data might be of importance in the better understanding of the problem at hand.

The examinations were all made by one person in order that a consistent view point might be maintained throughout, and comprehensive deductions be made, in other surveys this has been shown to be of importance. The Baldwin, Wallace, Woodbury average height and weight scale for height was used, and stand balance scales for weight. All weights and measurements were taken by Mrs. M. M. Huston, R. N. of the City Health Department. Teeth and tonsils were examined in proper light by tongue depressors; chest expansion was estimated by a linen tape measure, a mean of two expansions being recorded in inches.

As shown in the County examinations, and in other surveys, the predominance of girls to boys with this disease is six to one, so in order to attack the problem at hand with the least disturbance only the girls between ten and nineteen years of age were examined, including in that way the important adolescent age in which the endemic goitre is most prevalent.

The classification of the thyroid glands was as follows: Normal, very slight enlargements, slight enlargements, medium large, and adenomas.

**Normals:** A normal gland is one that is not visible, with a barely detectible band of thyroid tissue across the trachea and no thyroglossal stalk or pyramidal process.

**Very slight enlargements:** Are glands with a visible bulging of the thyroid isthmus, with a widening and thickening of the isthmus band or definite mass on palpation.

**Slight enlargements:** Includes all of the cases with visible and palpable thyroids, with a definite enlargement of one or both lobes.

**Medium large thyroids:** Are those cases with gross visible thyroids, with large palpable lobes on both sides.

**Adenomas:** Are single, isolated, circumscribed, nodules in one or more lobes of the gland.

Of the forty-three hundred thirty-two cases examined in the eighth grades and High

Schools of Louisville, there were 14.01% goitre cases found, comprising six hundred seven individuals. Out of six hundred seven goitre cases, there were two hundred ten or 34.5% very slight enlargements of thyroid, three hundred fifty-six, or 58.6% slight enlargements of thyroid, twenty-nine or 4.77% medium large goitres, and twelve or 1.97% adenomas. There were three adenomas which had previously been removed by operation. Forty-nine cases or only .8% of the total number of goitre cases were under treatment at the time of examination. There were five or .82% of definite hyperthyroidism, and twenty-nine cases or 4.6% of hypothyroidism as determined by obesity, skin changes, mental states, etc. none of which were under treatment. There were 5.8% more adolescent goitres present among the colored girls than white.

It is significant to note that in the instances of cases showing a family history of goitre, in seventy-seven or 60.1% of the cases it was in the mother in whom the disease appeared, the remainder of cases including father, sister, or aunt. In contrast to this among the non-goitre cases only one hundred twenty-six or 47% of the cases had the history in the mother; in the remaining per cent the goitres were largely in remoter relatives that is, cousins and grandmothers.

The possibility of these goitre cases being from families who have come from goitre districts and have moved into this section has been considered and rejected. For five hundred thirty-seven or 14.4% of the cases among the non-goitres were born out of the State, in contrast to only seventy-three or 12% of the goitre cases, and 90% of these last mentioned cases come from Indiana and Tennessee which are not in the goitre belts.

Fifteen years was the predominant age among the goitres, 24.8% of all of the goitre cases being found at this age, while 22.9% of non-goitres were fourteen years of age. Two hundred and fifty, or 41% of goitres were found to be in normal groups as regards weight. This normal weight group includes all cases between 7% overweight to 7% underweight. Only 40.24% of the non-goitres were in the normal group. Six per cent more goitre cases were found in the undernourished groups than non-goitres, and 5.6% of these goitre cases in the undernourished group were over 20% undernourished; 67% of the underweight goitres were among the slightly enlarged adolescent goitres, while all of the adenomas were in the normal weight group.

The teeth were classified according to tartar, tartar and cavities, tartar, cavities and pyorrhea and gingivitis, or extreme grades of dental neglect. It is not implied that the

existence of dental caries or tartar are points of infection, but the presence of such conditions may be the possible source of systemic infection. We know that the foci of infections are of far greater importance in the sporadic types of adolescent goitres than in the endemic types of goitres, and that states of mal-nutrition and associated conditions may play a part in the deficiency of dental development in these goitre cases.

There were sixteen hundred and forty-nine cases of defective teeth, or 36.9% of all the cases examined had improper dental hygiene. There were 3% more cases of tartar among the non-goitres than goitre cases, and 1.0% more tartar and cavities among the goitres than non-goitres. On the whole, the dental hygiene of girls is better than the corresponding number of boys; 63.1% of the cases were found to have sound well cared for teeth. However, there was slightly better dental hygiene among the non-goitrous group than in the goitrous group. The marked carious conditions were found more frequently among those with the especially enlarged thyroid glands.

The tonsils were classified according to: out, submerged, medium sized, large and cryptic. This classification is only an indication of degree of hypertrophy of tonsillar tissue and is not inferred to be an actual source of infection.

In these cases where the tonsils had been previously removed, it is assumed that this was done because of previous disease of the tonsils or suspected infections. Eleven hundred and thirty-three or 30.5% cases of non-goitre had had tonsillectomy in contrast to one hundred forty-four or 23.5% of the goitre cases. Twenty-three and six-tenths per cent of the cases had submerged tonsils in both goitre and non-goitre cases, while eleven hundred and fifteen or 29.9% of the non-goitres had medium sized tonsils in contrast to two hundred and six or 33.5% of goitre cases; four hundred and ninety-seven, or 13.3% of non-goitres had large cryptic tonsils in contrast to one hundred sixteen or 19% of goitres; 8.8% more goitre cases had medium or large cryptic tonsils than non-goitre cases, and there were 5.7% more large and cryptic tonsils in goitre cases than non-goitre cases.

The statement has been made by some that goitres are more frequently found in individuals whose tonsils have been previously removed, but the findings of this survey do not substantiate this. If the above statement were correct, then, assuming that the excised tonsils were diseased, the presence of the goitre might be either the result of the disease pre-existing before the removal of the tonsils, or a compensatory hypertrophy of the gland fol-

lowing the removal of the tonsils.

Chest expansion was estimated with a linen tape at a level of two inches below the nipple, and the mean of two expansions was taken. There were 2.3% more cases of goitre with expansions of one and one-half inches than non-goitres, 3.4% more three inch expansion in non-goitres than in goitre cases, and .5 of 1% or more cases with expansion of over three inches in the non-goitre cases than in the goitre cases. This is in accord with other surveys where it has been shown that the chest expansion of goitre cases is one inch less than non-goitre cases. The average chest expansion was two and one-half inches in all cases.

There were twenty-two hundred and eighty-nine cases or 61.4% of the non-goitre cases using iodized salt, in contrast to three hundred ninety-one or 64.4% of goitre cases, and 28.8% of non-goitres not using iodized salt, in contrast to 30.1% of goitres. These percentages are so close that deductions cannot be drawn from this group of cases.

There were 5.8% more goitres among the colored girls than white, and 14.7% more colored girls used iodized salt than white. There were equally as many cases using iodized salt in non-goitres as goitres and still there are 14.01% goitres present, which will lead one to infer that the therapeutic effect of salt seems negligible. If this is so, the public is given a false feeling of security as regards its use as a prophylactic. It is most inaccurate in its form of administration, and indiscriminately taken in contraindicated states, namely adult age, adenomas and cases with hyperactivity of the glands, produces most untoward results and often makes operation necessary when it could be avoided.

I wish to make a comparative resume of nine County Schools in which seven hundred and fifty-one cases were examined.

There were seventy cases of goitre found in the County. Nine and three-tenths per cent of the total number examined, or 4.8% fewer goitre cases than in the City.

There were seven or 10% very slight enlargements, fifty-six or 80% slight enlargements, four or 5.7% medium enlargements and three or 4.2% adenomas, which shows an increase of 21.4% more slight or very definitely enlarged glands and 2.25% more adenomas among County children than in the City. In other words, the presence of adolescent goitre is more distinct and clear-cut in the County than in the City, although the percentage is lower, which is in accord with the health ratio of the County and City children.

There were 7.1% of goitre cases under treatment. Four or 5.7% of cases had hyperthyroidism, seven or 10% of cases had



hypothyroidism, as indicated by physical signs. None were under treatment.

Sixty-eight or 9.9% of the non-goitre cases were born out of the State, while six or 8.5% of the goitre cases were born out of the State. Eleven or 16% of those born out of the State or the non-goitres had a family history of goitre, three or 50% of the goitre cases born out of State had a family history of goitre; likewise, in the County the associated history of goitre in the family is more definite than in the City.

Of these goitre cases twenty-two or 31.4% gave a family history of goitre in contrast to thirty-eight or 8.5% of the non-goitre cases, while 59% of the goitre cases had a family history of goitre in the mother in contrast to 41.4% of non-goitre cases. These County cases seem to show that a larger number of families have moved from goitrous districts into this County than was noted in the City cases, where, as was stated above, comparatively few family histories were traced to goitre belts.

In the County Schools the age predominance of goitre is one year younger than in the City, for 20.7% of non-goitre cases occur at twelve years in contrast to 21% of goitre cases at thirteen years. One may infer that maturity is slightly earlier in the County than in the City, due to the more open and physical type of life.

The teeth, on the whole, were somewhat better preserved in the County Schools than in the City, but the personal care of teeth was more neglected, and the goitre cases had more defective teeth, with cavities and gingivitis than the non-goitres. The marked carious conditions were more frequent among the boys and girls with thyroid enlargements.

There were fewer tonsillectomies among the County Schools, and 13% more tonsillectomies among the goitre cases than the non-goitres. There were 8% more submerged cases of tonsils among the goitre cases than non-goitres, and, on the whole, there were a greater number of cases of hypertrophy of tonsils among the County School children than in the City: 10% more non-goitre cases had medium large tonsils than goitre cases; this is a marked contrast to the City cases, where there were 17.7% more medium large tonsils among the goitre cases than among the non-goitres. This may be explained by the fact that the tonsils of City children are more subjected to infections, and thereby have more tendency to hypertrophy than in the same child in the Country. The hygiene of the County child is such that unless the predisposition of the goitre is close, the disease is less likely to appear than in the City, where mal-nutrition and infection, together with

lack of ample sunlight and out-of-door exercise play such a part in impeding the development of the individual.

The chest expansion is one inch to one and one-fourth inches lower among County children than in the City, and the goitre cases have about one-fourth inch greater expansion than non-goitres. This might be explained by the fact that in most instances the children in the City Schools have chest and postural exercises which are not so uniformly given in the County.

There were 20% fewer cases using iodized salt in the County than in the City and among the goitre cases there were 3% more using iodized salt than among the non-goitres, bearing in mind a total percentage of 9.3% goitres. This does not substantiate the theory that iodine alone is a cure for adolescent goitre, for with a smaller number of children using iodized salt in the County, there are 4.8% fewer goitre cases in the County than in the City. County children have the advantage over City children in fresh air, ample sunshine, exercise, green vegetables in abundance and adherence to regular hours in eating and sleeping—all aids to health.

So in contrasting the County with the City we find 4.8% less goitre cases that are using 20% less iodized salt; we find 9% higher number with a family history and a higher percentage of children born out of State, which leads us to believe that it is because of higher family incidence and predisposition that the County children have goitre, in spite of sunshine, fresh air, regular habits, good rest, variety of food stuff and 20% less iodine.

#### CONCLUSIONS

Of five thousand and eighty-three cases examined in Jefferson County and City High Schools there were 13.3% adolescent goitres present: 60.8% of the goitres were slight, 32.0% very slight enlargements, 4.8% medium large and 2.2% of cases had adenomas of thyroid: 2.4% more non-goitre cases were born out of State than goitre cases, and while 22.1% of goitre cases had family history of goitre, in contrast to 7.3% of non-goitres: 60% of goitre cases had family history of goitre in the mother, and the remainder in sister and aunt, in contrast to non-goitre cases, with 46.0% of cases in the mother and the remainder in more distant relatives. Age predominance was one year higher in the City than the County and 4.8% more goitres in City than County.

Thirteen per cent more goitre cases had defective teeth than non-goitres with the incidence equally distributed in the County and the City.

Two and seven-tenth per cent more goitre

cases had cryptic tonsils than non-goitre cases, with a greater number of cryptic tonsils in the City than in the County.

Chest expansion of goitre cases were one inch less than non-goitre and the County cases had less expansion than the City cases.

Three per cent more goitre cases were using iodized salt than non-goitres and 20% fewer cases in the County were not using iodized salt, with 4.8% fewer goitres in the County, which does not bear out the theory that iodine salt is sufficient as a prophylactic agent.

When the individual physician takes into consideration these findings based on five thousand eighty-three cases examined in our County he will treat and educate each family in his care, and with the aid of the Health Officers of both City and County concentrated attention will be given to instituting a regime which will have as its slogan, "No Adolescent Goitres in the Next Generation."

This slogan cannot be accomplished if the grocers are permitted to sell commodities to the public which mistakenly believe it can, by the use of these insure itself against goitre.

A regime must be maintained by the physician and Health Officers which will include a general upbuilding of the individual together with the correction of all foci of infection, and the proper use of iodine under supervision throughout the adolescent age. For the disappearance of adolescent goitre by iodine is not a sign of permanent cure of the disease, and those who have had adolescent goitres should at all times keep themselves in excellent physical condition. Further, the proper use of iodine is recommended in each pregnant woman who has a goitre and also to those women in pregnancy who have had adolescent goitres. This is a measure of preventing adenoma and adolescent goitres in girls in the second generation as well as prevention of adenomatous goitres in the mothers.

In this way adolescent goitres can be eradicated, and by the correction of the associated conditions the next generation will not only be healthier, but better informed as to the prevention and hygiene of the goitre and its accompanying problems.

#### BIBLIOGRAPHY

1. Prevention of simple goitre in man. Survey of incidence and types of thyroid enlargement in school girls of Akron (O) from 5-12 grades inclusive, plan of prevention proposed. (D. Marine & O. P. Kimball) J. Lab. & Clin. Med. 3:40, Oct., 1917.
2. Iodine in prophylaxis of endemic goitre. (C. Roux) Cor. Blf. Schweiz. Aerzie. 48:369, Mar. 23-18. Ab. J.A.M.A. 71:411, Aug., 3-1918.
3. Prevention of simple goitre in man. (O. P. Kimball & D. Marine) Arch. Int. Med., 22:41, July, 1918.
4. Congenital goitre. (A. F. Canelli) Pediatrics 27:264, May, 19.
5. Goitre as a public health problem. (M. Tolman.) Am. J. Pub. Health, 9:511, July, 1919.
6. Endemic goitre as public health problem, additional notes. (M. Tolman.) Am. J. Pub. Health, 10:434, May, 1920.
7. Is endemic goitre a water borne disease. (J. C. Day), N. Y. Med. J. 11:634, April 10, 1920.
8. Hereditary in exophthalmic goitre with report of 2 juvenile cases. (H. Chlumenlo), Arch. Neuro & Psychial, 3:530, May, 1920.
9. Congenital goitre, report of 4 cases. (W. B. Porter & R. A. Vonderlehr), Am. J. Dis. Child., 22:477, Nov., 1921.
10. Etiology of prophylaxis of simple goitre. (S. G. Ross.) Canada M. A. J. 11:144, Feb., 1921.
11. Simple goitre its prevention and treatment. (J. W. Moore) W. Virginia M. J. 16:91, Sept., 1921.
12. Use of iodized table salt in prevention of goitre. (H. G. Sloan.) Ohio State M. J. 17:172, March, 1921.
13. Solution of endemic goitre problem. (H. S. Sloan.) Southern Med. J. 15:202-208, March, 1922, (Charts.)
14. Drinking water and goitre incidence (E. Neisbach) Deutsche Med. Wchnschr. 48:657-658, May 19, 1922. Ab., J.A.M.A. 79:510, Aug. 6, 1922.
15. Present day sources of common salt in relation to health and especially to iodine scarcity and goitre. (E. R. Hayhurst.) J.A.M.A. 78:18-21, Jan. 7, 1922.
16. Relation of water production of goitre. (V. P. Guitland.) Ky. M. J., 20:612-615, Sept., 1922.
17. Incidence of goitre in school children. (J. Kaeriter.) Munchen Med. Wchnschr. 69:47-48, Jan. 13, 1922. Ab. J.A.M.A., 78:1094, Apr. 8, 1922.
18. Scientific control of iodine treatment. (F. deQuervain.) Schweiz. Med. Wchnschr. 52:857-862, Aug 21, 1922. Ab., J.A.M.A., 79:1469, Oct. 21, 1922.
19. Pathology of endemic goitre. (J. Miller.) Canada M. A. J. 13:642-645, Sept., 1923.
20. Simple goitre, its local prevalence. (C. H. Watt.) J. M. A. Georgia, 12:177-179, May, 1923.
21. Survey of thyroid enlargements among school children of Grand Rapids. (T. Reed- H. T. Clay.) J. Michigan M. Soc. 22:323-325, Aug., 1923. (Charts.) Also Health Reports, 38:2411-2412, Oct. 19, 1923.
22. Prevention of simple goitre. (O. P. Kimball.) Am. J. Pub. Health, 31:81-7, Feb., 1923. (Illus.) Pub. Health reports. 38-877-885, Apr. 27, 1923.
23. Incidence and prevention of thyroid disease in children. (N. O. Pearce.) Jour. Lancet, 43:157-158, Apr. 1, 1923.
24. Prevention and treatment of simple goitre. (O. P. Kimball.) J. Michigan M. Soc. 22:390-393, Sept., 1927. Northwest Med. J. 27:442-445, Dec., 1925.
25. Prevention and treatment of simple goitre. (D. Marine.) Atlantic M. J. 26:437-443, Apr., 1923.
26. Prevention of simple goitre. (F. A. Southwick.) Wisconsin M. J. 22:176-181, Sept., 1923.
27. Congenital goitre. (H. H. Skinner.) J.A.M.A. 82:1190-1192. Apr., 12, 1923. (Illus.)
28. Iodine deficiency and prevalence of simple goitre in Michigan. Preliminary report. (R. Molin.) J.A.M.A. 82:1328-1332, Apr. 26, 1924. (Charts.)
29. Studies of incidence and inheritance of goitre in St. Louis and Chicago. (B. Lloyd.) Am. Clin. Med. 3:275-291, Oct., 1924. (Charts.)
30. Goitre survey in Utah. (J. Wallace.) Calif. & West Med. 22:431-435. Sept. 1924. (Charts.)
31. Goitre survey in Wexford County, Michigan. Pub. Health Reports. 31:663-664, Apr. 4, 1924.
32. Increased frequency of goitre in school children (C. Lamel.) Med. Klinich. 20:112-113. Jan. 27, 1924. Ab. J.A.M.A. 82:755, March 1, 1924.
33. Morbidity of endemic goitre. (F. A. Collier.) J.A.M.A. 82:1745-1748, May 31, 1924. (Charts.)
34. Thyroid enlargements among Minnesota school children, prevalence as shown by a survey of 4,061 children in 3 localities. (R. Olesen & T. Clark.) Pub. Health Rep. 3:2561-2572. Oct. 10, 1924. (Charts.)
35. Thyroid survey of 47,493 elementary school children in Cincinnati. (R. Oleson.) Pub. Health. Rep. 39:1777-1802, July 25, 1924. (Charts.)
36. Iodine in nutrition; goitre as a nutritional problem; report of committee on nutritional problems. H. O. Sherman.) Am. J. Pub. Health. 14:1038-1042, Dec., 1924.
37. Iodized salt, report of committee of Pediatrics section, Michigan State Med. Society, J. Michigan M. Soc. 23:178-182. April 1924.
38. Methods of administering iodine for prophylaxis of endemic goitre. (R. Oleson.) Pub. Health. Rep. 39:45-55, Jan. 11, 1924.



39. Factors of significance in adolescent goitre. (H. G. Hill, P. C. Prett & J. Forrest Smith.) *Quat. J. Med.* 18: 133-142, Jan. 25, 1925. (Charts.)
40. Endocrine relations between mother and foetus. (R. Neurath.) *Wein. Klin. Wchnshr.* 38:1206-1207, Nov. 5, 1925. *Ab. J.A.M.A.*, 85:2001, Dec. 19, 1925.
41. Incidence of goitre among school children. (D. C. Hall, C. M. Hoffrichter & H. J. Mohr.) *Endocrinology*, 9:137-143, March-April, 1925. (Charts.)
42. Endemic goitre as public health problem. (O. P. Kimball.) *New York State J. Med.* 25:207-205, Feb. 13, 1925.
43. Endemic goitre problem. (R. Olesen.) *Mil. Surgeon*. 56:466-472, April, 1925.
44. Prophylaxis of goitre. (F. de. Quervain.) *Schweiz. Med. Wchnshr* 55:658, Jan. 22-1925. *A. B., J. M.A* 841: 506, March 21-1925.
45. Endemic goitre and intelligence. (R. Olesen & M. R. Feenaid.) *Pub. Health Rep.* 41:941-986, May 21, 1926. (Charts.)
46. Relationship of endemic goitre to certain potential foci of infection. (R. Olesen & M. E. Taylor.) *Pub. Health Rep.* 41:557-571, May 26, 1926.
47. Gas and iodine metabolism with goitre of puberty. (A. Eksstein & E. Mommer.) *Ltschr.f.kinderh.* 40:475-487, 1925. (Charts.) *Ab., J.A.M.A.* 86:659, Feb. 27, 1926.
48. Etiology of endemic goitre. (H. Ritzmann.) *Mun-chen Med. Wchnshr.* 72:2018-2019, Nov. 20, 1925. *Ab., J.A.M.A.* 86:749, Jan. 2, 1926.
49. Goitre in children in New York City: Thyroid survey of 11,084 school girls & 783 school boys. (F. Cohen.) *Am. J. Dis. Child.* 31:676-692, May, 1926. (Charts.)
50. Thyroid survey of 97,051 students in grade and high schools in Topeka. (E. G. Brown.) *J. Kansas M. Soc.* 26:8-12, Jan., 1926. (Charts.)
51. Prevention of goitre by iodized salt. (J. Wagner-Jauregg.) *Wein. Klin. Wchnshr.* 38:1277-1280, Nov. 26, 1925. *Ab. J.A.M.A.* 86:79, Jan. 2, 1926.
52. Iodized salt in prevention of goitre; is it a safe measure for general use? (C. L. Hartsock.) *J.A.M.A.* 86: 1339-1340, May 1, 1926. (Charts.)
53. Endemic goitre and physical development in Cincinnati school children. (R. Olesen & M. E. Taylor.) *Pub. Health Rep.* 41:1881-1895, Sept. 3, 1926.
54. Endemic goitre and school absenteeism. (R. Olesen & M. E. Taylor.) *Pub. Health Rep.* 41:2459-2468, Oct. 29, 1926. (Charts.)
55. Goitre in Childhood. (E. H. M. Mulligan.) *Brit. M. J.* 2:373-376, Aug. 28, 1926.
56. Endemic thyroid enlargement in Connecticut. (R. Olesen & M. E. Taylor.) *Pub. Health Rep.* 41:1693-1707, Aug. 29, 1926. (Charts & Maps.)
57. Distribution of endemic goitre in United States as shown by thyroid surveys. (R. Olesen.) *Pub. Health Rep.* 41:2691-2708, Nov. 26, 1926.
58. Endemic thyroid enlargements in Massachusetts. (R. Olesen & M. E. Taylor.) *Pub. Health Rep.* 42:804-916, March 25, 1927.
59. Further studies on relationship of endemic goitre and certain potential foci of infection, in Connecticut. (R. Olesen & M. E. Taylor.) *Pub. Health. Rep.* 42:606-619, March 4, 1927.
60. Relationship of diseased tonsils to goitre; observations based on series of 9,864 goitre cases. (I. Bram.) *M. & Rec.* 125-442-445, April 6, 1927.
61. Prophylaxis of simple goitre. (J. R. Morrison.) *Ky. M. J.* 25:239-241, May, 1927.
62. Iodization of public water supplies for prevention of endemic goitre. (R. Olesen.) *Pub. Health Rep.* 42:1355-1367, May 20, 1927.
63. Prevention of simple goitre as public health measure. (D. Marine.) *Johns-Hopkins Univ. Sch. Hyg. D. Larnan Lect.* pp. 1-18, 1927.
64. Endemic goitre in Oregon. (R. Olesen.) *Pub. Health Rep.* 42:2831-2849, Nov. 18, 1927.
65. A base of iodine, especially of iodized salt. (C. L. Harstock.) *Ann. Int. Med.* 1:24-27, July, 1927.

## DISCUSSION

C. H. Harris: I want to say in the beginning that Dr. Johnson performed a tremendous amount of work, without expense to any one, in making this goiter survey the results of which he has presented to us. Three or four years ago Dr. Emerson made a survey of the general

health conditions, hospitals, etc. in this community, in connection with the health council, which cost the health council about \$5,000.00. It was Dr. Emerson's opinion at the time that we did not have a goitre problem in this community. I have never felt that way about it, because of the number of goitres encountered in my work, and I have always believed there must be a goitre problem here. So when the opportunity presented to have made another goiter survey, as well as a tuberculous survey of the children in the city and county, as health officer of the city I very readily offered to grasp that opportunity, and afforded Dr. Johnson all the help and counsel that I was able to offer. His work has been admirably done. A card system has been kept of it, and we have in the health department now very definite arrangements made to tabulate all this work where it will be available to physicians, and I believe it will be of great benefit. The tuberculosis survey is now being made by Dr. Miller and Dr. Gernert of my staff, and we have found a very surprising thing, i. e., that the city is punctured from one end to the other with tuberculosis juvenile in type. When the survey is completed it is our purpose to bring the results before this society. I believe this will be of great benefit to the physicians in this community.

The first impressive feature shown by Dr. Johnson's report was the disproportion found in goitre among girls and boys, the average being about six to one. I presume that may be attributed to the greater activity of the thyroid gland of girls during the adolescent period than in boys of the same age. In this survey it was revealed that hypertrophy of the gland often occurs without symptoms of hyperthyroidism. It was no small task to examine 5,083 children as thoroughly as was done by Dr. Johnson and analyze the results from the various standpoints he has mentioned: the hereditary features of goitre, focal infection, the relative proportion taking iodized salt, etc. In my opinion the use of iodized salt should be condemned. The people have no means of definitely determining the amount of iodine they are getting because they put iodized salt in everything that is cooked and eaten in the home. They bask in the sunshine of protection they do not have; they think their children are absolutely safe so far as goitre is concerned because they are using iodized salt. This is being done in practically every household in the country without any definite idea of the amount of iodine that is being taken. The

disastrous effects of iodine in susceptible individuals is well known.

I believe the profession, and especially the members of this society, ought to appreciate the splendid work that has been accomplished by Dr. Johnson. As health officer of the city I appreciate it very much. The survey was not made from any selfish standpoint, or personal standpoint; it was made purely and solely from a scientific standpoint because an opportunity was afforded to the health officer to have it done, just as opportunity has been afforded the health officer to have a tuberculosis survey made. It was done by the school board and cost the city nothing, except that I did ask the board to put Dr. Gernert on the city pay roll when I assigned him to this work.

We bring the results of this survey before you as the contribution of Dr. Johnson and the city board of health for what it may be worth. We intend to pursue the work further and have had appointed a goitre committee of three representative physicians of the city with whom we have frequent conferences so there can be no criticism.

In closing I wish to say that we are engaged in health department work and this survey represents an important part of it. We make no effort whatever to treat people except where we are compelled to do so in emergency cases. We merely claim what is our right, our privilege and our duty to the public strictly along the lines of preventive medicine. We grasped the opportunity to have this survey made, we have been scientific in handling the work, and we present it as the contribution of Dr. Johnson who gave his time to it, aided by the city health department, and hope it will be appreciated by the medical profession who will reap the benefits and rewards of the work Dr. Johnson has accomplished.

**R. R. Elmore:** Dr. Johnson is to be congratulated on the splendid work he has accomplished. It is no small task to make a survey of more than 5,000 school children and ascertain the number of goitres among them. If we can determine whether goitre is increasing or decreasing in the city and county the information will be very valuable to us. It has been demonstrated in the goitre clinics that there are a large number of adolescent goitres outside of the so-called goitre belts. In the goitre belts there is a decided deficiency of iodine in the food and water, and goitre is frequently encountered among adults. In this community goitre generally develops in young subjects. I believe obstetricians should pay more attention to the administration of iodine to prospective mothers than is being done. I am very glad that feature was mentioned by the essayist. In my opinion there is something in the influence of heredity and the incidence of goitre, and the physician should be urged especially to admin-

ister prophylactic doses of iodine in families giving a goitre history.

The use of iodized salt is an inexact procedure. If there is any merit in the administration of iodine it should be given under supervision of the physician. There should be a definite time for giving it and a definite dose administered.

The feature in which I am particularly interested is whether there is an increase in the incidence of goitre in this community or not. The fact that goitre surgery is increasing does not necessarily imply that there is an increase in goitre, because our methods of diagnosis and treatment have so radically changed in the last ten years that these patients naturally find their way into hospitals for treatment. On the other hand, if there is a definite relationship between iodine deficiency and the prevalence of goitre, then we have good reasons to fear that goitre is increasing.

The iodine content of the soil was fixed in the beginning, and it is presumed to have been of oceanic origin. In recent years since fertilizers have been used so extensively, there has been no source from which iodine removed from the soil could be replaced. Formerly when manure was used exclusively, considerable iodine was carried back to the soil. In this country no iodine is found in fertilizers. In Germany after investigation they have found they can build up a good percentage of iodine in plant life by adding iodine to their fertilizers. If there is a steady exhaustion of iodine from the soil and no effort made to replace it, and if iodine has a definite relationship to goitre, we have the best possible reason for fearing that goitre is probably increasing, and it will continue to increase until we pay more attention to building up of the iodine content of the soil and water. In this locality it may be true there is no great deficiency of iodine in the soil or water, but there is not as rich a content of iodine here as there is further south. Survey of the soil shows that from the Great Lakes to the Gulf there is a constantly increasing richness of the iodine content and along with that a constantly decreasing percentage of all types of goitre.

**Philip F. Barbour:** Dr. Johnson is to be congratulated and complimented for his excellent work and the manner in which he has presented the results of his survey. To examine more than 5,000 school children and gather all the facts he has given us represents an enormous amount of work. I do not believe many of us would be willing to undertake such a task, and he is to be congratulated on his ability. This survey contains many interesting features and the information will be valuable to us in the future if we will bear it in mind. The fact that all these examinations were made by one man eliminates the probability of error. I have had children



referred to me with the diagnosis of goitre and on examination I found no thickening of the isthmus and no enlargement of the thyroid gland. I am sure we can rely upon Dr. Johnson's judgment as to the presence or absence of goitre because he has examined such a great number of cases. In classifying goitre we might use the terms one-plus, two-plus, three-plus, etc. and group our cases in that way, thus indicating whether goitre is present and if so to what extent.

As to the question of the iodine content in soil and water: I think we cannot get away from the fact that goitre is becoming a very large problem because of deficiency of iodine in the soil. In the Great Lakes region we know there is a deficiency of iodine. In Switzerland where goitre is endemic we know the water is very poor in iodine. In the vicinity of Louisville perhaps there is no deficiency of iodine in the soil. I recall having heard someone say there is a vast salt lake under Louisville and if one went deep enough he would find salt. We know that wherever salt is found iodine is likely to be present. There is this point to be remembered, i. e., the manner in which our water is now being purified. This raises the question whether we are not eliminating iodine that was present in the water by using chlorinated lime in the process of purification. This matter was brought before the American Medical Association a few years ago and it was stated that goitre was actually increasing, it was not a question of more accurate diagnosis, it was a real quantitative increase in goitre cases. One of the reasons suggested for the increase was the method in which water was being purified all over the country might have eliminated the natural iodine content.

The survey Dr. Johnson has given us studied ten years from now ought to give us some very valuable information as to the prevalence and increase of goitre in this community.

The essayist stated that adolescent goitre, especially in girls, is a deficiency goitre. I think the fact, as he emphasized in his report, that focal infection about the teeth, tonsils and other low types of infection show that these young girls are carrying a heavier burden than they ought at the time the goitre develops. The development of girls at puberty is far greater than that of boys. Much more demand is made on the system of girls, their growth is more rapid for the time being, so if they are handicapped by disease of the tonsils, teeth or any other part of the body it places an extra burden on them and probably the thyroid gland will show failure.

I do not believe all adolescent goitres are cured by iodine alone. Some of the patients will need the administration of thyroid in addition to iodine. Of course all foci of infection

should be removed.

Dr. Johnson mentioned the fact that he secured more accurate histories of children in the country than in the city. I wonder if that is not due to the fact that people in the country know more about themselves than we do in the city? They have less to interest them and know their family histories for generations better than we do in the city. I often find it difficult to obtain an accurate family history from the mother.

I think we are to be congratulated upon having in Louisville a man who was willing to do this intensive work and present it to us in the excellent manner that Dr. Johnson has.

**J. Rowan Morrison:** I think the society owes Dr. Johnson a debt of gratitude for having taken the time to make a personal survey of such a great number of children relative to goitre in the county and city. It is far better to have a survey of this nature made by one man than by several, because what seems to be an enlarged thyroid gland to one, might not seem enlarged to another. When the American Goitre Association met here a few years ago, I wrote several men throughout the state about the incidence of goitre in their respective communities. I recall that a very excellent physician in Berea replied that he had occasion to examine a great many young people, but did not find many with enlarged thyroids, that he had no way of definitely determining the enlargement. Dr. Johnson has lived in the goitre belt, he practiced there for a long time, and knows much about what goitre is and what goitre is not, therefore I think it was very fortunate that we could have this survey made by a man as much in touch with goitre as he is.

A point of particular value mentioned in Dr. Johnson's report is the family history, the incidence of goitre in mothers, sisters and other females in the family. We know in such cases these is a tendency to the development of goitre in the children.

Another thing that is apparent and probably of some importance is that iodized salt does not appear to reach the problem, although at the time I was reading a survey of the statistics I think we were giving about ten times as much iodine as we should. Another thing, I know of ten or twelve cases where iodized salt activated adenoma of the thyroid. These patients were using iodized salt and their adenomata became active. This point is worth remembering. I do not believe the taking of iodized salt was entirely responsible, it was probably more a matter of infection of the teeth, tonsils, etc. One of the most common causes of bad teeth is that children make too much "fillage" without enough "chewage." They do not get enough calcium and do not use their teeth enough. Candies and ice cream form a great part of the

child's daily diet. The teeth and tonsils play an important part in the general proposition of goitre.

The thyroid gland is the distributor of iodine to the system, and if there is any disturbance with the function of the thyroid there is no question but iodine properly administered will do much good. A small dose—1-10 milligram per week—is much better than taking iodized salt as in the latter case we do not know how much iodine people are receiving. During the adolescent period many girls have slight goitre, and I do not believe the taking of iodized salt is the proper way to approach this subject.

I believe that women who have had adolescent goitre should during pregnancy be given about the same amount of iodine as recommended for the child after birth, that is 1-10 milligram per week. When children are brought to me I instruct the mothers "to make an engagement with themselves" to give the child a dose of iodine each week on a certain day so they will not forget it. I believe one of the most important things in the prevention of goitre is the administration of iodine during pregnancy.

**J. M. Frehling:** I wish to thank Dr. Johnson for his splendid presentation. I wish he would tell us in closing what percentage of patients operated upon for adenoma of the thyroid gave a history of adolescent goitre.

**Virgil E. Simpson:** That this study presented by Dr. Johnson has entailed a great deal of work we are all prepared to acknowledge. That it has elements of some value we are likewise prepared to admit. The difficulties that might arise from a study of the sort, as in any other statistical study, are I think likewise apparent. In the first place we must consider the broad statement that here are more than 5,000 children that have been examined and certain results obtained as determinable by standards set up by those who are making this particular study, that these are in no definite sense a cross-section of the actual conditions that obtain in the community taking the population as a whole. The question, for example, as to the presence or absence of goitre alone is not an easy one to determine. The essayist elected to use three groups to determine the size of the thyroid gland. I think he could very well have left the fourth group out of consideration entirely and would not have vitiated the value of his findings in the slightest. To determine whether the thyroid gland is slightly enlarged is not an easy matter. Who can set up the exact measurements of any gland or organ in the body? Who can establish the exact measurements that I ought to have in regard to my ears, how wide my mouth should be, or how big my feet? Neither can you with any great degree of accuracy in border line cases say that this thyroid gland is slightly enlarged, or that this

gland is not slightly enlarged. No two doctors in a large proportion of cases in a doubtful group would agree on the exact classification. The isthmus of all thyroids is not situated on the same level, in some cases it is high, in others deep in the suprasternal notch, and as a consequence the isthmus may appear prominent or not prominent depending on its location and other conditions than the size of the thyroid gland.

It has been stated by several that adolescent goitres are deficiency manifestations. That is unquestionably true. The development of adolescent goitre is merely an expression on the part of the thyroid gland in response to a demand for more iodine than the gland in its present state of activity can supply, and enlargement of the gland in that individual, if it becomes enlarged, is merely an expression of an effort on part of the gland to supply the deficiency by increasing its ability to work. It is comparable to the increase in size of the muscles on physical exercise; it is comparable, so far as the effects are concerned, to what happens to the heart when a valve leaks, in so far that there is an increase in the working power of the heart established; it is comparable to what happens in the remaining kidney when one kidney is removed, the remaining kidney has to assume 100 per cent of the work; it is comparable to what happens when 25 per cent of the glands in the pancreas are destroyed or become diseased and the blood sugar rises above normal, yet the remaining 75 per cent of these glands may do the work required by the individual when placed on a maintenance diet.

Let us look upon adolescent goitre as a deficiency condition, but let us not fall into the error of saying that because the thyroid gland of Mary enlarges in a given family before the age when the other evidences of puberty appear that it is due to deficiency of iodine in Mary's water or food supply. That is not necessarily true, because there may be Martha, Jane and Alice, sisters of Mary, eating the same food and drinking the same water, with perfectly normal thyroid glands. The condition in Mary's gland, and of her three sisters' glands, is an individual condition, and is not a community problem in any sense. It is a problem for the doctor who sees Mary to try and correct the deficiency as early as he can reorganize it and so far as possible to correct it after adolescent enlargement takes place.

Another difficulty arises in regard to the value of the family history of children with reference to goitre or any other disease. It is probably true that not a small percentage of children when asked the question whether goitre existed in any of the family would say no without any idea of what they were answering. Many of them perhaps never heard of the



term goitre as a disease and would not know whether their mothers, grandmothers or sisters had goitre, particularly goitre which would permit of some difference of opinion as to its existence. Moreover, many mothers know themselves that they have enlargement of the thyroid gland, but are sensitive about it and do not discuss their defects with their children. So I think the family history as set down by this survey does not represent a true index of actual conditions. This is not a criticism of the individual survey, but it is a criticism of the value of the family history in this, as well as, other similar studies.

Let us ask ourselves these questions when we come to consider the ultimate effects of the development of adolescent goitre. Does it really increase the possibility of development of adenoma? Do a larger percentage of adenomas that develop in adolescent goitre become toxic than those which occur in similar cases in individuals who do not have adolescent goitre and who develop adenomas? I think we can lay this down as a safe physiological law from which pathological deductions can be made, that any gland that is obliged to do more work or to make greater effort to do the required work of the body, is perhaps just that much out of line of actual physiological equilibrium and just to that extent it is possible that an adolescent thyroid is more likely to show some disturbance later from the occurrence of infection, etc., or development of the exophthalmic type of goitre than when there is a perfectly normal thyroid gland. I have repeatedly seen Basedow's disease develop in young people in whom there had been a perfectly normal thyroid gland, so far as my ability to determine it was concerned.

The question of whether or not these individuals were using iodized salt, etc. has been sufficiently covered. I am in hearty accord with the statement of most of those who have discussed this question as well as the attitude of the essayist, that this is a commercial proposition largely. The commercialization of a medical truth or of a medical statement that has an element of truth in it through commercial enterprise is likely to lead the public astray. We have an example of this in the use of yeast. The manufacturers tell the people to eat a cake of yeast every day. Yeast may have some value, but has no more place in the diet of the average individual than iodine whether taken in the form of iodized salt, Lugol's solution or any other preparation.

As to the proportion of cases under treatment according to the resume of the essayist. I had the opportunity of reading his paper as an extended courtesy a week ago, and think the statement was made that forty patients were under treatment for goitre, or approximately 8-10 of one per cent. I simply mention these figures to

show how one may err in his conclusions however careful he may be in his investigations. I have had no chance to examine my personal records since my attention was called to these figures, but think I am safe in saying that I have under observation now in the city of Louisville alone, at least one-half that number of goitre cases in children, and surely I am not seeing 50 per cent of the children in Louisville requiring goitre therapy. This merely illustrates how easy it is to be misled by patients, particularly children, in obtaining the history.

Another question that we may well ask ourselves in this connection, is, does the relief or prevention of adenomatous goitre in the mother necessarily protect her offspring from the development of a similar condition? It is a well known fact in experimental work on animals that when the diet of the pregnant female of some species is deprived of the normal amount of iodine, her offspring will show evidences of iodine deficiency, and one of these evidences is enlargement of the thyroid gland in the newborn. But just as soon as the newborn is placed on its proper diet, that enlargement as a rule disappears as do other evidences of deficiency. Now if we recognize in goitre a deficiency disease in the beginning, why is development delayed until about the age of puberty? The essayist gives us no information on this point because his study was confined to a group of girls about that age; he did not look into the condition of children in the lower grades—first, second, fourth, etc.—most of these children would have shown normal thyroid glands. So it would appear that if adolescent goitre is going to develop in these girls at or about the age of puberty, we must look for the cause in some damage the thyroid has sustained or changes that have occurred as a result of disease perhaps not well understood, regardless of whether or not that particular child has had a normal gland prior to that time. If this is true, and I think it is, then the prevention of development of adenomatous goiter in this generation has little bearing, if any, on the development of adenomatous goiter in the next generation. Therefore, following that idea to its next and most logical conclusion: the incidence of serious thyroid conditions, such as toxic adenoma and exophthalmic goiter, will likewise be prevented in a very small proportion, if at all, by whatever procedures you may adopt to protect the individual now from the development of deficiency states. I think the thing we want to remember more particularly than anything else is that in this community in which we do not have in any sense a goiter problem, as obtains among people, for instance, in the lake regions or on the west coast of this country and in certain European countries, that the prevention of the adolescent type of enlargement of the gland has little bearing on what is going to

happen to that individual in the case of toxic adenoma that as a rule develops between the third and fourth decade; we rarely see toxic adenoma in people under thirty years of age. Adolescent goiter has but little to do in my experience with the development of the graver types of goitre, namely toxic adenoma and the exophthalmic group, which I think has little relationship from the standpoint of causation as to whether that individual had slight enlargement of the gland at puberty and certainly no relationship in my experience as to whether or not the mother had any enlargement of the gland during her adolescent period. Finally, we know that doctors are prone to run amuck in problems particularly in those that they do not understand thoroughly. It is the easiest thing in the world to become over enthusiastic about something. If you accept as true the dictum that every expectant mother in Louisville should be given iodine by her physician, you will bring the whole problem into an atmosphere of disrepute, because the majority of them do not need it. If a doctor knows anything about the thyroid and thyroid deficiency, and is able to determine in an individual case that the expectant mother is showing thyroid deficiency, then his position is secure; but to give iodine to every expectant mother is not only unnecessary but I think will have a tendency to bring the whole problem of the prevention of adolescent goitre into a questionable field. Let us keep our feet on the ground on this problem and not run amuck about it. The state board of health has recently shown considerable enthusiasm on this question even going so far as to suggest iodizing our state water supply which seems entirely unnecessary. Let us keep our feet on the ground, let us accept the survey that has been presented as it should be accepted, in the spirit of appreciation for the time, patience and efforts of those responsible for it, but let us keep as free as possible from errors, admitting that errors must creep in as I know and Dr. Johnson knows they have crept in, and then refrain from adopting any routine or community procedures.

**W. O. Johnson, (in closing):** I certainly thank the gentlemen for their very liberal discussion. There are a few points of interest that it might be well to mention in closing.

I made an effort to ascertain the percentage of iodine in the different food stuffs, as well as the soil and water, but found that no definite analysis had been made. It is a known fact, however, that although there may be a large quantity of salt present in any locality, that does not necessarily mean that there is a large percentage of iodine in the water or soil. For the sodium iodide is more readily soluble than sodium chloride.

It is interesting to make a comparison between conditions existing in Switzerland and

here. I visited Professor de Quervain Clinic for three weeks, and was surprised to find the problem there so different from here. Their work is directed almost entirely toward the prevention of adenomatous goitre and the carcinomatous degeneration that so frequently occurs in that type of goitre. Our problem of prevention here is primarily concerned with exophthalmic goitre.

In making this survey it was noteworthy that the teeth of children in the country were in better condition, although dental hygiene was sadly neglected in some instances, than the teeth of city children. That is probably to be explained by the fact that country children get a greater amount of "roughage" in their diet than city children.

The question was asked about the relationship in patients with a definite history of adolescent goitre that later required operative intervention. In analyzing the patients I have operated upon, I find that 37 per cent of those cases in which operation became necessary gave a definite history of adolescent goitre in earlier life.

Another interesting feature in this connection is that in 288 of the goitre cases found in the city, the children gave a very definite history of previous operations in 5 per cent. If the child can remember such circumstances in giving the history, it would seem to me the chances of error are lessened, but it is quite true that some mistakes are unavoidable in a resume of this nature.

In regard to the influence of heredity. It is a known fact, established by those who have done the most work in this disease, that if the mother has an adenomatous goitre, one out of three of the girls in the first generation will have an adolescent goitre, all of the girls in the second generation will have adolescent goitre, about 3 per cent of these children will have adenoma of the thyroid due to detal rests associated with some congenital disturbance of the gland, and in the fourth generation not only all the girls will have adolescent goitre, about 3 per cent of these children will have adenoma of the thyroid due to detal rests associated with some congenital disturbance of the gland, and in the fourth generation not only all the girl wills have adolescent goitre but about half the boys. So it seems to me there is a definite hereditary relationship. I have under observation at present twenty-five families in which one or more of the children have goitre and have traced the history back to the grandmother in thirteen of these cases and to the mother in the remainder.

One of the interesting things about adenoma of the thyroid in the adult to which we do not pay sufficient attention and yet it is important, is that we find in the adult type of goitre especially the single adenoma that about 90 per



cent of the malignancies of the thyroid occur in this group. That in itself is worth considering. We find a very high percentage of these cases apparently that do not have the adenoma in early life, it may appear at any period ten to twenty years later. After reaching adult life, they then gradually develop adenomatous goitre. In some cases we know that the adenoma was present at an earlier date, but for some reason failed to develop. During the past summer I had three such cases under observation, the first in a girl of 18, the second in a woman of 25, the third in a woman 34 years of age. These patients gave no history to indicate that their thyroid glands had not previously been perfectly normal, yet within twenty-four hours they developed adenoma of the thyroid. Now we know very well that these adenomata did not actually develop in twenty-four hours. In one case I think development of the adenoma was the result of the use of iodized salt. In the other two cases it was probably the result of hemorrhage into a previously existing adenoma.

As to the examination of children in the lower school grades. In the County I examined all children as they came and found that apparently the line of demarcation was ten years. In the City I examined children of ten years and over, and in the whole survey there was not a goitre present in a child under ten years of age and there were none present at the age of ten, so we took that as the arbitrary age below which there were so few goitres that it was not worthwhile to examine the younger children.

The administration of iodine to expectant mothers who have no history of adolescent goitre in their youth is certainly an unnecessary procedure. Only the expectant mother who has a history of adolescent goitre should have the administration of iodine during her pregnancy, and even then the drug should be used with caution because it is known that a pregnant woman is much more susceptible to iodine than one who is not pregnant, and its toxic effects are much more likely to be manifest.

I perfectly agree with the statement that the most dangerous types of goitre are the toxic adenoma, hyperthyroidism or exophthalmic goitre, but these types are seen principally in adult life and were not included in the survey a resume of which has been presented.

Again I wish to thank the gentlemen for their very liberal and instructive discussion.

## WOMAN'S AUXILIARY PANORAMIC VIEW OF THE WOMAN'S AUXILIARY TO THE A. M. A. IN FOUR ARTICLES

### 1. THE EASTERN DISTRICT

Mrs. W. Wayne Babcock

According to the Constitution of the National Auxiliary the first vice-president is automatically chairman of organization, the three other vice-presidents being organizers for this section of the country. Mrs. Southgate Leigh, of Virginia, therefore holds this chairmanship, and the Eastern District is her particular responsibility. At her request a series of four articles is being prepared by her committee in order that each district may be cognizant of the progress of its own state's as well as those of the other three sections. The individual state journals have been generous in extreme in the space they have allowed their auxiliaries and this additional courtesy of reporting the auxiliary situation in other states is deeply appreciated, for there is a growing desire to know "what others are doing."

New Hampshire stands alone as the only New England state 100% organized and cooperating with the National Organization. Last year the state auxiliary had misgivings as to its necessity and usefulness but an urgent request from the medical society that the women remain organized, dispelled all doubts. During the year following, Mrs. Hubbard, wife of the state president, visited every county which encouraged and stimulated the growth of unit auxiliaries.

The New Jersey Auxiliary made pilgrimages to state institutions, set apart one meeting when the mothers of physicians were entertained, and sponsored various health meetings. The Essex County Auxiliary, assisted by the physicians, succeeded in establishing a course of health talks, in cooperation with the Y. W. C. A. of Newark, emphasizing especially prenatal care and information which would aid the mothers of babies and young children. Last year Mrs. James Hunter, Jr., New Jersey's state president, visited every county as did Mrs. Walter Jackson Freeman, in Pennsylvania, during her presidency. One cannot help drawing the conclusion that personal contacts are necessary for county development and success.

Virginia is active in spots. The doctors encourage the auxiliaries as they believe that through them education with regard to the menace of state medicine can be spread.

Ohio for several years has been sending representatives from a few organized counties to the national meetings but as yet there is no state organization. As our friend and advisor,

Dr. Upham, lives in Ohio, it is felt that he will advise the National Auxiliary when the auspicious time arrives for the establishment of a State Auxiliary.

The District of Columbia seems so completely diverted with Washington affairs that the auxiliary which so capably cared for the A. M. A. meetings some years back seems to have gone into retirement.

Delaware in a breathless, better-late-than-never manner, has completely caught up and is most interested and active and has entered upon serious work by assisting the men of the profession in establishing a medical library in Wilmington. They will cooperate with Philadelphia at the time of A. M. A. and the eastern section will introduce them with pride to the National Organization. West Virginia is up and doing and you may expect still better things from that state this year.

Maine, Massachusetts, Rhode Island, Vermont and Maryland have reported the interest of individuals but no organized effort. Queries from different localities in New York as to why there is no auxiliary have been answered with the statement that several years ago the House of Delegates voted unanimously in favor of the auxiliary and authorized its organization. The same year Connecticut voted favorably but no definite steps have been taken.

Pennsylvania has surely discovered the rhythm in which its auxiliary work is best done, for concrete accomplishments have been turned out regularly, year by year. Of the three thousand dollars contributed last year to the Medical Benevolence Fund more than two-thirds was contributed by the Auxiliary. A definite trend toward educational meetings is felt all over the state and socially it is hoped that the carefully formed Philadelphia plans for the next meeting will bring honor and glory to the Keystone State. Not only are the adult members of the auxiliary meeting but a group of the most charming and good-looking daughters of doctors are working together in order that they may know each other and work in unison for the comfort and pleasure of the A. M. A. guests when they come to Philadelphia in May. Verily, who can question the wisdom of the auxiliary, when it brings about so much willing work in behalf of the medical men of the country?

#### ANNUAL ELECTION OF OFFICERS

The time is fast approaching for the annual election of officers for the county auxiliaries. This is an opportune time to consider the work of the past year and to make plans for the future. Membership dues in most counties, that is, in those counties having March 31 as the end of their fiscal year, will be due April 1st and should be paid promptly to facilitate the work of the organization.

#### JEFFERSON COUNTY ACTIVE

The Woman's Auxiliary to the Jefferson County Medical Society held its regular meeting with a luncheon at the Brown Hotel, Monday, December 1st, with its President, Mrs. John K. Freeman, presiding. There were fifty-two women present. The luncheon was such a huge success that a rising vote of thanks was given to the Chairman, Mrs. I. T. Fugate. The music for the luncheon was furnished by Mrs. Edward C. Redman, who sang two exquisite solos. Miss Thelma Ogden, Chairman of Entertainment, was originator of a guessing contest of twenty words containing "well." After a given length of time the one having most correct answers was awarded a prize. Likewise, the one having the fewest correct answers was given the "booby" prize.

The luncheon was followed by a business meeting, where reports from all the chairmen present were made.

Mrs. S. C. McCoy, Chairman of the Hospital Committee, reported that she had made calls at all the hospitals, and that she was planning an extensive line of Christmas work for about forty people. Bags of candy, toys, and a Christmas tree were to be given to the Children's Free Hospital. Two more Christmas trees were to be decorated and presented to the City Hospital, one to the women's division of the Psychopathic Ward and the other to the men. This is the first time that this much work has been done by our Auxiliary at Christmas time, and Mrs. McCoy is to be congratulated on her splendid efforts.

Mrs. W. E. Fallis, Chairman of the Study Classes, reported that since this group was organized in October that the number of women attending these meetings was increasing each time. At the last meeting there were more than thirty present.

Mrs. C. G. Arnold, Chairman of the Sewing Unit, reported that they had had two meetings which had proved very successful, and that much work had been accomplished. The regular December meeting was postponed because everyone was unusually busy preparing for Christmas. There is an average of twenty-five women who attend these sewing units.

Reports were made by the delegates who attended the three recent Medical Conventions the conventions were the American Medical Association at Detroit, the Southern Medical Association at Louisville, and the Kentucky State Association at Bowling Green.

Mrs. Hugh N. Leavell, Chairman of the Mayor's Committee, reported that improvements had been made to give an air of greater cheerfulness at the City Hospital.

Mrs. O. H. Kelsall, Publicity Chairman, an-



nounced that all who had read the newspapers could readily see how generous the local papers had been in their publicity for the Medical Auxiliary. Every meeting of the Auxiliary, the Study Class, the Sewing Unit, and the Fruit and Flower Guild has been given prominent space, and also many photographs of our auxiliary members have been published. The society columns, too, have printed every social function given by the Medical Auxiliary.

Mrs. Harry Venable, Chairman of the Membership Committee, gave an outline of the work she intends to do in February when a drive will be made for new members.

Mrs. A. T. McCormack told of the motorcade to Frankfort during the Southern Medical Convention where the unveiling of the statue of Ephraim McDowell in the rotunda of the State Capitol was held with appropriate music.

Several letters were read from women who attended the Southern Medical Convention congratulating the Jefferson County Auxiliary on its success as hostess during the Convention.

After naming Mrs. D. A. Bates, Mrs. Harry Davidson, and Mrs. D. A. Bates, Mrs. Harry committee, the meeting was adjourned.

MRS. O. H. KELSALL,  
Publicity Chairman.

### BOOK REVIEW

**TROPICAL MEDICINE IN THE UNITED STATES**—By Alfred C. Reed, M. D., Professor of Tropical Medicine, The Pacific Institute of Tropical Medicine, Within The George Williams Hooper Foundation For Medical Research of the University of California. 60 illustrations. J. B. Lippincott Company, Philadelphia and London.

As the lanes of commerce are now being shortened to tropical countries, all over the world, no physician will be completely isolated from contact with some form of tropical diseases. This is a very valuable book for the general practitioner and also a valuable guide for aid in laboratory diagnosis.

**STERILIZATION FOR HUMAN BETTERMENT**—as prepared by E. S. Gosney, B. S., L. L. B. and Paul Popenoe, D. Sc., published by the Macmillan Company, New York City, should be placed in the hands of every man and woman who is confronted with the health and sex-social problems of today, that they could better understand the method and result of properly supervised sterilization. It would also go a long way toward bringing about such laws as would eliminate much of the misery and unhappiness in the world, and their proper enforcement. The subject, as set forth by the authors, is plain and concise; the reader is not burdened with voluminous

statistics, and the book should be very helpful to anyone who is trying to maintain a balanced viewpoint on this much discussed subject. The price of the book is \$2.00.

**A PRACTICAL TREATISE ON DISORDERS OF THE SEXUAL FUNCTION IN THE MALE AND FEMALE**—By Max Huhner, M. D., Chief of Clinic, Genitourinary Department, Mount Sinai Hospital Dispensary, New York City; Formerly, Attending Genitourinary Surgeon, Bellevue Hospital, Out-Patient Department and Assistant Gynecologist, Mount Sinai Hospital Dispensary, New York City; Member, American Urological Association, American Medical Association, New York Urological Association; Fellow of the New York Academy of Medicine, Etc.; Author, *Sterility in the Male and Female and its Treatment, Etc.*

Third Edition, F. A. Davis Company, Publishers, Philadelphia. Price \$3.00.

The subjects discussed in this book are: Masturbation, Impotence, Pollutions, Priapism, Clitorism, Clitoris Crises, Satyriasis, Nymphomania, Frigidity, Vaginismus, Dyspareunia, Dyspareunia in the Male, Absence of Orgasm in the Female during coitus, Enuresis, Withdrawal, Continence, and some Unusual Forms of Sexual Neuroses. Most of the material herein represents the results of original investigation and study, never before published. Some of the subjects discussed have never before found their way into English medical literature, and some have never been discussed at all; so that even their names had to be invented by me. Especial attention is given throughout to treatment so as to make the book as practical as possible. It has also been my intention to make the discussion of each subject complete in itself, so that readers who happen to be interested in some particular subject only, need not be referred to other chapters of the work.

**CRIME AND THE CRIMINAL LAW IN THE UNITED STATES**—By Harry Best, Ph. D. Professor of Sociology, University of Kentucky. The MacMillan Company, Publishers, New York. Price \$6.50.

It is a real pleasure to read this very interesting volume on Crime by Dr. Best of the University of Kentucky and it is written in such attractive style that it appeals to the layman as well as to the professional student of crime.

The bibliography occupies sixteen pages which illustrates the authorities consulted in preparing this book. We recommend it to our readers.

# Kentucky Medical Journal

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1931 MEETING LEXINGTON

## COUNTY SOCIETY REPORTS

**Harrison:** The Harrison County Medical Society held its annual meeting at the Hotel Harrison, December the first.

This was one of the best meetings we have had for a long time.

Visitors and members present were: Drs. Shaw, McMurtry, Coldwell, Biltz and Jacobs, from Newport.

Drs. Scott, Harvey, Marks and Van Meter, Lexington.

Drs. Daugherty, Sterne, Orr, Paris.

Dr. Clark, Falmouth.

Drs. Carr, Wells, Rees, N. W. Moore, Moody, Brumback, Martin, Wyles, Lail, W. B. Moore, Chamberlain, Todd, Henry, Mcilvain, McDowell and Blount.

After a splendid dinner, the meeting was called to order by the President, Dr. Josephus Martin, and the Society proceeded to elect officers for 1931, as follows:

President—Dr. J. E. Wells, Cynthiana.

Vice-President—Dr. Moody.

Secretary-Treasurer—Dr. W. B. Moore, Cynthiana.

Extemporaneous talks were made by Drs. Shaw, Clark, Coldwell, Biltz, Jacobs, Scott, Harvey, Marks, Van Meter, Daugherty, Sterne and Orr.

The meeting adjourned.

W. B. MOORE, Secretary.

**Taylor:** On the fourth of December, the Taylor County Medical Society, in conjunction with the societies of Adair, Green and Marion counties, held its regular annual banquet at Campbellsville. A most bounteous feast was enjoyed by the doctors and their guests, which included Dr. Virgil Simpson, Dr. A. Bass, Dr. and Mrs. A. T. McCormack, of Louisville; Dr. David Gaddie, of Hodgenville and Prof. D. J. Wright, president of Campbellsville College, in whose building the meeting was held.

Dr. V. E. Simpson delivered a most profitable lecture with lantern slides, on the subject "The Mendelian Law in Relation to Medicine." Dr. A. T. McCormack spoke on the future of medicine with emphasis on the side of preventative medicine through co-operation between the family physician and the public health service. Mrs. McCormack recalled the fact that Jane Crawford had lived near the place of meeting, and suggested that a highway be named in her memory. The local physicians were represented on the program by Dr. E. L. Gowdy, as toastmaster and Dr. J. L. Atkinson, who acted as official host.

At the annual election of officers the following were chosen.

President—C. V. Hiestand, Campbellsville.

Vice-President—B. T. Black, Campbellsville.



Secretary-Treasurer—W. B. Atkinson, Campbellsville.

Censors—B. T. Black, E. L. Gowdy, W. R. Elrod.

Delegate—To be appointed by the President.  
W. B. ATKINSON, Secretary.

**Carlisle:** The Carlisle County Medical Society met December 2nd, 1930, after 6 o'clock dinner at Hotel Richardson, Bardwell, which dinner consisted of quail on Toast, and other liquid and solid refreshments too numerous to mention.

The business meeting was held in the office of Dr. G. W. Payne, Bardwell; following the dinner, and all members were present with exception of Dr. Rowley, of Milburn.

Minutes of the previous meeting were read and approved.

Dr. Harrel was elected honorary member, pending his reciprocity papers from Texas.

The scientific part of the program consisted of a paper by R. C. Burrow, on "The Treatment of Syphilis Without Mercury, Salvarsan or Bismuth," and the address of the Retiring President, which was a very interesting comparison of the practise of Medicine from the days of Galen, (150 160 A. D.) with the present.

The following officers were elected for the year 1931.

President—E. E. Smith, Bardwell.

Vice-President—H. T. Crouch, Bardwell.

Secretary—R. C. Burrow, Cunningham.

The Society adjourned to meet in Arlington, on the first Tuesday in March, 1931.

R. C. BURROW, Secretary.

**Franklin:** The Society met in regular monthly session on November 6th, 1930, in the Writing Room of the Capital Hotel.

The Society was called to order by the President, Dr. John Patterson. Minutes of the October meeting were read and approved.

Members present were: Drs. Patterson, Travis, Ginn, Budd, Jackson, Stewart and Minish.

The Secretary having charge of the program, read a paper on Diabetes Mellitus, with report of cases. A generous discussion of the subject followed, participated in by Drs. Budd, Travis, Patterson, and the essayist in closing.

No other business, the Society then adjourned to the Hotel Dining Room for lunch.

L. T. MINISH, Secretary.

**Franklin:** The Society met in the Writing Room of the Capital Hotel in regular monthly session at 12 o'clock noon, on December 4th, 1930.

Dr. John Patterson presiding.

Minutes of the November meeting were read and adopted.

Members present were: Drs. Jackson, Coblin, Stewart, Ginn, Demaree, Travis, Heilman, Darnell, Budd, C. T. Coleman, Patterson and Minish.

Dr. C. T. Coleman made a motion that we assist gratis in making tuberculin tests of the school children. Motion was duly seconded and carried unanimously.

The next in order of business was the election of officers for the year of 1931, which resulted as follows:

President, Dr. O. B. Demaree, Frankfort.

Vice-President, Dr. M. C. Darnell, Dukers.

Secretary-Treasurer, Dr. C. E. Youmans, Frankfort.

Delegate, Dr. John Patterson.

Alternate Delegate, Dr. G. A. Budd, Frankfort.

No other business the Society adjourned to the Hotel Dining Room for lunch.

L. T. MINISH, Secretary.

**Muldraugh Hill:** WHEREAS, in the death of William A. Jenkins, Louisville, on December 17, 1930, The Muldraugh Hill Medical Society has lost a valued and valuable member, a leader in progressive medical thought, and an honest and sincere friend,

THEREFORE BE IT RESOLVED that this Society hereby record its expression of personal and professional loss and extend to the family its sincere sympathy in a mutual affliction.

(Signed): Edw. Speidel,

A. D. Willmoth,

Virgil E. Simpson,

Committee.

**Jefferson:** The program for Monday, February 2nd:

#### Symposium on Heart Disease

Criteria for the Diagnosis—Dr. W. B. Troutman.

Roentgenological Aspects—Dr. Jos. C. Bell.

Operative Risk—Dr. Emmet F. Horine.

Treatment—Dr. S. C. Frankel.

Discussion to be opened by Drs. Virgil Simpson and Morris Flexner.

#### February 16th—Case Reports

Clinical and Cystoscopic Manifestations in a Case of Renal Infarction.—Dr. Clem Hill.

#### Essay

Miscarriages—Dr. W. T. McConnell.

Discussion to be opened by Drs. Edward Speidel and W. O. Johnson.

**Letcher:** At the meeting of the Letcher County Medical Society held last evening, Tuesday night, December 30th, the following officers were elected for the year 1931:

Dr. Thomas Jennings, Whitesburg, President.

Dr. B. F. Wright, Seco, Secretary-Treasurer.

In our meeting of last evening the county officials and the superintendents of the mining camps of the county were our guests. A banquet was given and the following program was rendered:

Toastmaster (as never before) 1. Dr. Sheppard. 2. Dr. Jennings.

Address of Welcome, Dr. Thomas Jennings.

Response, Dr. B. F. Wright.

Our Commonwealth, County Attorney, Astor Hogg.

The Value of Medical and Public Health Workers to our County, Judge John D. Sergeant.

The Passing of the Country Doctor, Dr. Bert C. Bach.

The President's Farewell, Dr. Edwin F. Sheppard.

The Election of Officers.

R. DOW COLLINS,  
Retiring Secretary.

**Franklin:** The Society met in the Writing Room of the Capital Hotel in regular monthly session at 12 o'clock noon, on January 5th, 1931.

Minutes of the December meeting were read and adopted.

Dr. E. C. Roemele had charge of the program. Members present were: Drs. Budd, Demaree, Patterson, Minish, Ginn, Jackson, Heilman, Travis, Roemele, Coleman and Youmans.

Dr. Gant, of New York City, gave a very interesting lecture on "Rectal Diseases" which was discussed by members present. Dr. Gant was given a rising vote of thanks for his visit and lecture to the Society at the end of the meeting.

No other business, the Society adjourned to the Hotel Dining Room for lunch.

C. E. YOUMANS, Secretary.

**Hardin:** At the regular meeting of the Hardin County Medical Society the following members were present:

Dr. C. F. Long, Elizabethtown, presiding; Dr. H. R. Nusz, Cecilia; Dr. R. T. Layman, Dr. J. M. English, Dr. J. C. Mobley, Dr. C. W. Rogers, Dr. J. I. Taylor, Elizabethtown; Dr. D. T. Roberts, West Point, and Dr. D. E. McClure.

This was the annual election of officers for next year and the following were elected:

H. R. Nusz, Cecilia, President; Dr. D. T. Roberts, West Point, Vice-President; Dr. J. M. English, Censor, Dr. D. E. McClure, Elizabethtown, Secretary-Treasurer.

D. E. McCLURE, Secretary.

**Scott:** A meeting of the Scott County Medical Society was held December 4th, 1930, with

a delightful dinner at Cain's Restaurant, with a business meeting following at the Health Office. Following officers and members present: Dr. E. A. Anderson, presiding; Drs. Barlow, Johnson, Cull, Allphin, Knox, Baird, Amerson, Sanford, and Heath. Visitors were Dr. E. R. Graff, Director Mother and Child Health Demonstration; Dr. J. L. Jones, State Epidemiologist and Miss Taylor; Dr. Jones, Secretary and Mrs. Marie Adams, Nurse from Scott County Health Department; Miss Florence Hauswald, Miss Lula B. McClain and Miss Lucille Couch attended the business meeting. Dr. Johnson read the minutes of previous meeting, owing to illness of Dr. A. Stewart, Secretary.

The election of officers was held, Dr. W. S. Allphin elected President; Dr. M. D. Sanford, Vice-President; Dr. A. Stewart, Secretary and Treasurer; Dr. E. A. Anderson, Delegate; Dr. D. B. Knox, Alternate. Censors, Dr. S. S. Amerson, 3 years; Dr. H. H. Roberts, 2 years; Dr. P. H. Crutchfield, 1 year.

Following the election of officers, the reading of thirteen previously Dick Tested, First-Grade children, from Garth School, was read by Dr. Jones, of which seven were positive. Then a two reel film was shown by Miss Taylor of the technique and correct method of procedure of administering the Dick Test and the dosage of therapeutic and prophylactic Scarlet Fever Serum.

H. V. JOHNSON, M. D., Acting Secretary.

**Whitley:** The Whitley County Medical Society met on December 8, in the office of Dr. E. S. Moss, Williamsburg, at 1:00 p. m.

The following officers were elected for the ensuing year: President, Dr. L. Terrell, Corbin; Vice-President, Dr. F. S. Smith, Corbin; Secretary and Treasurer, Dr. C. A. Moss, Williamsburg; Board of Censors, Dr. E. B. Stonifer, Williamsburg; Dr. J. D. Adkins, Williamsburg; Dr. L. B. Croley, Williamsburg, and Dr. C. A. Moss was elected delegate for 1931 and L. H. South was elected alternate.

Being no further business, meeting was adjourned.

C. A. MOSS, Secretary.

#### NEWS ITEM

Dr. Joseph C. Bell announces the opening of his office January 2, 1931, 402 Heyburn Building, Louisville in practice of X-Ray diagnosis and treatment as a specialty. Hours 9:00 A. M. until 5:00 P. M. Sunday by appointment only. Phone: City 238.





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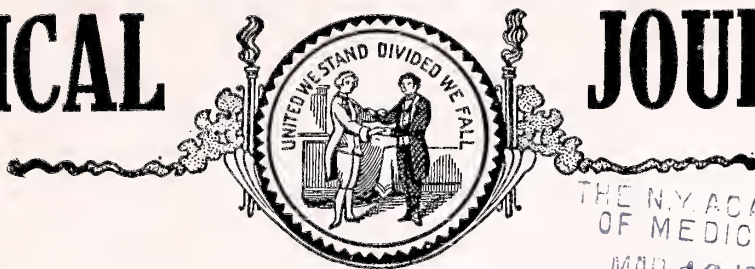
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# KENTUCKY MEDICAL JOURNAL



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NEXT ANNUAL SESSION, LEXINGTON, 1931

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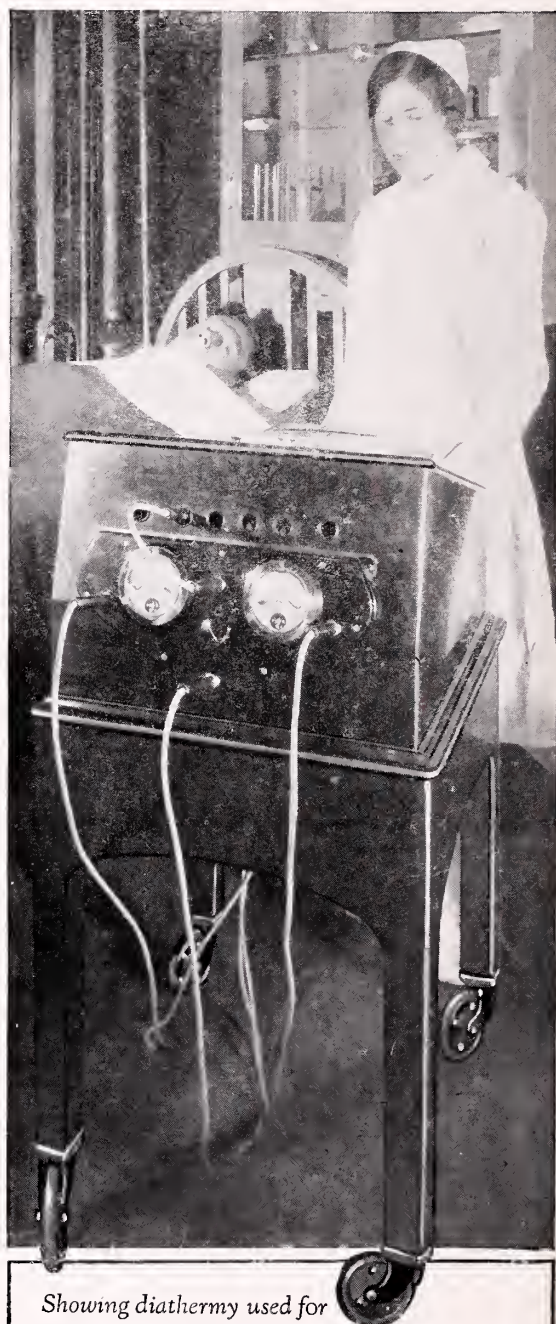
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Showing diathermy used for producing therapeutic fever in the treatment of dementia paralytica. Photo courtesy Northwestern University Medical School, Neurological Clinic, Chicago.



# KENTUCKY MEDICAL JOURNAL

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## EDITORIALS

### THE ATTITUDE OF THE MEDICAL PROFESSION OF KENTUCKY

This period of general depression, upon which a terrible drought has been superimposed, presents complex problems for solution. At a time when great financial institutions have crashed and the credit structure of a whole section has been prostrated it is difficult for any of us, sitting amidst the wreckage, to keep our faith strong and our vision clear so that we will look to the future while attempting to preserve ourselves in the present.

No other self-respecting, self-sustaining group, unless it be the farmer and miner, has suffered more injury during this period than the medical profession. Almost universally over-worked and too frequently under-paid in normal times, they have been and are the first line of defense against the invasion and spread of disease and in the protection of personal and public health, while, at the same time, they have seen their personal income shrink and shrivel, too frequently, to the vanishing point.

The Editor of the JOURNAL has heard heart-rending stories of privation from doctors and doctors' families in recent months. In previous disasters, not only in this country, but in lands beyond the sea, similar conditions have been ameliorated by the familiar historic record of the Red Cross, which has provided not only food and clothing, but medical supplies and service.

All disasters come at the wrong time, of course; but this drought and depression selected the most inopportune of any yet. Following the three flood and poor crop years the 1930 drought came just in the midst of a great political campaign and at a period when the credit structure of the entire nation was, at least, shaken by the spectacular destruction wrought by collapse of a highly speculative stock market. From the beginning of the drought it appeared evident that there was a wide-spread determination on the part of authoritative officials and others controlling publicity to minimize both its degree and extent, with the evident hope, now proven vain, that rain would fall and manna would be distributed in time to prevent the actual distress now become so prevalent in

the drought-stricken area that it cries aloud for succor. The more prosperous, in every community, drained and strained themselves to help their neighbors; local treasures found themselves faced with demands on the relief and pauper funds, for which no previous experience had prepared them. The national relief organizations failed to realize the magnitude of the problem and also seemingly appeared to be afraid to investigate too much its details because of this very magnitude. Wherever the Red Cross has preserved the spirit of Clara Barton and Mabel Boardman in its beneficent functions it has merited the affectionate confidence of the American people. Our experience in the drought area this year gives us complete assurance that most of the officials and the rank and file of its membership have preserved that ideal and made it practical. They have carried food to the hungry, have clothed the naked and have relieved the distress. Faced abruptly by the sudden demand from these sufferers, the public mind had not been sufficiently prepared to capture and maintain the tremendous popular interest necessary to secure quickly the enormous amounts necessary for the expense of their regular relief program. Under these circumstances they have apparently felt compelled to minimize the expenditure for medical supplies and, up to the time of this writing, to discontinue their usual provision for medical service in the disaster. This has greatly complicated the problem of the individual physician in the section. It has even created the demand for a Federal appropriation to pay for medical service.

Even in this crisis the medical profession in Kentucky maintains its firm conviction that the practice of medicine is inherently an individual responsibility. We are opposed to the state practice of medicine. We believe that every individual should be free in the choice of his physician for personal services. We believe that every private practicing physician should receive his compensation from his patients in proportion to the services rendered. We are opposed to the panel system, or any other form of socialism in medicine.

While maintaining these principles and demanding their protection, we realize that there are certain public problems in medicine for the solution of which official organizations must be maintained by appropriation, Fed-

eral, State and local. Among these are the care of the delinquent, the insane, the defective and the criminal, and those broad community problems which are recognized under the general title of public health. The latter term has too frequently been used as a cloak for insidious abuse of the rights and prerogatives of the practitioner of medicine. Curative medicine, if it is to continue its great development of the past half century, will maintain its present relationships. Its progress has been so rapid that it has been difficult for its own members to absorb it, and, without an agency to interpret it to a naturally less receptive public, it would be impossible for it to maintain its contact with, and retain the confidence of, that public. As important as are the functions of health departments in environmental sanitation, in the control of communicable and epidemic diseases, and in the health supervision of those wards of the state, the school children, it is our conception that, far and away, the most important function of health departments is the education of the public as to the true values in medical science so that they may be taught to avoid self-diagnosis and self-medication, as well as the pitfalls of the charlatans and quacks, of the faddists and fakirs, who, whether recognized by law or not, are both dangerous to the real sick and useless to the well.

The physicians of Kentucky have frequently in the past gone through periods of strain and stress together. However difficult, we have maintained our self-respect and determined our course, firm in our faith in the Great Physician, and constantly conscious of the eternal verities. During this, the greatest disaster that has ever affected our people, we have endeavored more completely to win their gratitude by giving them, rich and poor alike, a greater service and we feel that we have been more worth-while as a profession than we have ever been before. It is our firm determination to remain united and, inspired by the self-forgetful example of our medical forebears, to carry on for the health protection and the well-being of the men, women and children of our Commonwealth, come what may.

#### THE LEXINGTON MEETING

The annual meeting of the Kentucky State Medical Association will be held this year in the Memorial Hall at the State University at Lexington. We know this will be good news to the medical profession of the State. Many of us are alumni of the University; many more had their sons and daughters educated there and it will be a pleasure to all of us to see this really great institution and make our

home with them for a week. We feel confident that the atmosphere of the University will mean much to the spirit of the meeting. Doctor McVey and his associates are building a great institution in Kentucky and we all need to know it better so we can give it the kind of intelligent support that only comes with knowledge.

No city anywhere has better hotels than Lexington. Those of our doctors who prefer hotel accommodations will be able to secure them at reasonable prices at either the Phoenix or the LaFayette, both of which are connected with the University by street cars. Following our pleasant experiences at Richmond and Bowling Green, the local committee has also arranged for the opening of Bradley Hall for the week and we will not only be able to be intimately associated but will have the privilege of seeing again the way the modern educational institution cares for its inmates.

Arrangements for the Lexington meeting are being made by a Committee of the Fayette County Medical Society composed of Doctors L. C. Redmon, Chairman; Charles A. Vance, Ed Ray, W. Gayle Crutelfield and J. S. Chambers. The names of the committee and the splendid profession and its great traditions in Fayette County will make every physician in Kentucky eager to attend the Lexington meeting.

#### THE MODERN TREATMENT OF LOBAR PNEUMONIA

It is a timely season to discuss the modern advances made in the treatment of Lobar Pneumonia. This disease is always prevalent and each year takes a heavy toll from the world population. Lobar Pneumonia is due to an infection of the lung with the pneumococcus. It is important in the beginning to determine the type of pneumococcus which is the causative agent from both a therapeutic and prognostic standpoint.

The pneumococcus is divided into four types which are called types I, II, III, IV. The best method of typing is to inject the sputum directly into the peritoneal cavity of the white mouse. In twelve hours the mouse is usually dead of a pneumococcic septicemia. The exudate from the peritoneal cavity is now mixed with a specific serum of type I, type II, and type III, and incubated for a few minutes. If clumping of the organisms takes place with any one of these three sera, the pneumococcus belongs to that group. If it does not, then by exclusion it is classified as type IV as there is no specific serum for this organism.

At the same time a blood culture should be



made as much can be learned as to the severity of the case from the knowledge as to whether the blood contains bacteria or not. For example, if the case belongs to type III, which is the most severe type of infection, the general mortality is 40%, but if a positive blood culture exists, the mortality is 98%, which makes the case practically hopeless from the beginning. In type I, the general mortality is 25% but is raised to 50 to 55% with a positive culture. In type II, the general mortality is 30 to 35%, and 80 to 85% with a positive culture. Type IV is the mildest form, showing a general mortality of only 20%, but even this is raised to 50 to 55% if the blood culture is positive.

If the case belongs to type I, the effect of the Antipneumococcic Serum is most decided. In many of these cases a most pronounced improvement is quickly brought about and the serum should always be used. It is given intravenously, the first dose being 10,000 units, administered very slowly. The second dose 20,000 units, and these doses given at intervals until 100,000 units have been administered over the first twenty-four hours. The patient should be carefully watched during administration. If there is any suggestion of a reaction, adrenalin and morphine should be administered. If no reaction occurs within thirty minutes, it will not occur. In type II, the serum is also of considerable value but not equally as effective as in type I. In type III, the serum is apparently of no benefit.

Much can also be accomplished by saving the work of the lung in keeping the patient in an atmosphere of oxygen. We owe the greater part of our knowledge of the splendid adjunct to the treatment of pneumonia to the researches of Dr. Alvin J. Barach, of New York, who has constructed certain tents which enable the patient to be kept in a percentage of oxygen atmosphere considered desirable by the physician. These tents operated by means of a fan motor cause a circulation of air through soda lime and salted ice which remove the carbon dioxide and the moisture. The percentage of oxygen that should be maintained depends upon the condition of the patient. If the milder cases, 30 to 40% is sufficient; if the case is more severe, it is often necessary to keep up an atmosphere of around 50%. Over 60% should not be used, as this is dangerous, causing an actual irritation to the lungs. The oxygen percentage should be tested from time to time with a testing apparatus. Where the tent is not available, by means of an ingenious valve attached to the oxygen tank, the exact quantity of oxygen can be controlled and this can be permitted to pass

through a nasal catheter, and at the rate of four liters per minute, it will keep the atmosphere breathed by the patient of an oxygen percentage of 30 to 35% which is a wonderful adjunct in the treatment. In certain hospitals this nasal catheter method is used as a routine, and only the more severe patients placed in the tents for higher oxygen percentages.

It is needless to say that a pneumonia patient should be kept very quiet and that abdominal distention should be avoided by the administration of simple foods and the use of enemas with Pituitrin if necessary. Digitalis should be administered, but there is some difference of opinion as to the extent of the digitalization. Probably a milder digitalization of one minim per pound weight is the most practical method of administration. The best stimulants in the severe cases are Caffeine and Sodium Benzoate, and Adrenalin.

Glucose is of great value when the Toxemia becomes marked, and should be given intravenously. A practical method is to use the 50 c.c. Ampoules, giving them every few hours day and night. Of course, fluids should be pushed by mouth and if necessary by hypodermoclysis if the stomach cannot retain them. The proctoclysis method is not so satisfactory in the case of pneumonia owing to the possible abdominal distention and embarrassing the circulation.

With this scientific method of treatment, the mortality of Lobar Pneumonia cases in general has been greatly reduced.

R. HAYES DAVIS

#### THE POST GRADUATE COURSE

The Committee of the State Medical Society on post-graduate instruction have decided to hold the Post-Graduate Course somewhat earlier this year. After conferring with the doctors last summer the committee thought possibly it would be more convenient for the physicians to attend these lectures in June instead of July so the committee has selected two weeks beginning June 1st.

The University of Louisville is planning to have a large Alumni gathering and Alumni banquet on the night of June 3rd. The Alumni of the University are welcomed at these lectures and the larger groups will enable us to give more intensive work along different lines.

The Committee will plan special lectures for those desiring extra work along any line. They will welcome suggestions or requests for lectures. Further information and the program will be printed in an early issue of the JOURNAL.

**ORIGINAL ARTICLES**  
**SYMPOSIUM ON MINOR PROCEDURES**  
**REQUIRING MAJOR PRECAUTIONS.**  
**DILATION AND CURETTAGE**  
**OF THE UTERUS\***

FRED L. KOONTZ, M. D.

Louisville.

Of all minor procedures with major consequences, uterine curettage is easily in premier position.

The curette was invented by a Frenchman, Recamier and perfected by J. Marion Simms in 1867. It has proven an instrument of untold value to suffering womanhood—and through its adaptability for evil, a dangerous weapon in the hands of the ignorant, the careless and the moral bandit.

The golden age of the procedure was from 1890 to 1910.

During my student days I was called upon many times to give "a little chloroform" for the family doctor—who placed the patient on the dining table and curetted her uterus.

It was then indeed considered a minor procedure and fraught with "major consequences" only when it was not done.

And permit me to observe here—that in the absence of better and safer procedures—since learned, it was logical and wise and saved many a woman from invalidism or death; desiderata now accomplished through safer means, in the average case.

The curette will do the same thing today in the exceptional case—in skilled hands and under proper circumstances, but, it is no longer the "teething ring" for the infant surgeon.

The operation has by no means sunk into "innocuous desuetude" however, it still is resorted to under many and variable conditions—with at times more zeal than discretion; and, I suspect, because the subject has been entirely neglected in the past few years in American Literature, and ignored, alike, as a topic for discussion in our Medical gatherings.

I was surprised to find that during the past ten years only minor mention has been made by four American Surgeons—and two of the articles were written to exploit some modification of the curette.

I have found nothing since 1926 in America, while almost every issue of the Foreign Journals including our neighbors carried articles on the subject.

What is the explanation? Are we, in

America, thinking only in terms of major operations? Is the correct answer; that our foreign friends are evaluating this, as a minor procedure fraught with major consequences? If so, it behoves us to stop and consider—and considering, give the subject sober serious study.

Perforations are not always due to carelessness, neither do they occur in the hands of the unskilled, exclusively.

The wide range of pathology in the uterine musculature from fibrosis to fatty degeneration—may under added infection, permit a curette to perforate almost of its own weight.

Another item in the danger complex is the position of the uterus. If the surgeon does not know whether the uterus is in retro or ante flexion—and he is encountering a septic sub-involution, his curette may impinge upon the wall and perforate while he thinks he has reached the fundus.

A bi-manual examination is imperative in all cases as a preliminary procedure to determine size, position and relative depth from which "estimate of the situation" comes a safe knowledge of axial direction.

The sound is not a safe guide for this.

Occasionally in operating for other intra-abdominal conditions, one sees scars on the peritoneal surface of the uterus, made, no doubt by the perforation of a probe.

We will do well to remember the classic experience of Dr. Gaillard Thomas, of New York, Emeritus Professor of Obstetrics and Gynecology, the College of Physicians and Surgeons.

"On one occasion, a few years ago, I was sitting at breakfast, when the servant announced that there was a gentleman downstairs asking to see me who seemed to be crazy. I accordingly went down, and found a fine looking man about thirty-five years of age who was walking the floor and appeared to be in perfect agony of anxiety and excitement. He told me he was a physician from a western town, and that he had come with his wife who had injured herself in an attempt to produce an abortion. He stated that this wife, believing herself to be pregnant, had become so alarmed from the fact that at her last confinement she had suffered severely from puerperal fever, and that she had insisted on getting rid of the product of conception by artificial means herself. Accordingly, wishing to humor her, he had produced and prepared for her an iron umbrella rib, telling her that if she would introduce it into the uterus her purpose would be accomplished. In his absence she had attempted this procedure, and found that the rib, having once been pushed in, kept going

\*Read before the Kentucky State Medical Association, Bowling Green, September 15-18, 1930.



on and on, until it was suddenly grasped by something and pulled up entirely out of her reach, disappearing within the uterus. In answer to my inquiry how long his wife had been pregnant, he replied two months.

Though this story seemed utterly improbable, I at once went to see his wife at her hotel and found a very handsome woman lying in bed apparently in perfectly healthy condition. Her pulse and temperature were normal, and she stated that she suffered no pain whatever, and that the only thing of which she complained was a slight cough. Under the circumstances I thought it best to make an examination of her chest, and asked her to sit up in bed for this purpose. As soon as she did she gave a sudden gasp, as though she were in great agony, and she suffered so greatly from difficulty of breathing that it was five minutes before I could go on with the examination.

I then believed that the history told by her husband was true, and, fearing that the most serious consequences might ensue, I determined to perform laparotomy at once. Every preparation was accordingly made for the operation, but just as the ether cone was about to be applied to her face an uncle of hers, who was present, remarked to me that if I proceeded it must be on my own responsibility and that if anything untoward happened he would invoke the law to punish me for my temerity.

This announcement somewhat startled me, and, as I had undertaken the case merely to help a fellow-practitioner who was in sore distress, I asked the patient if she would take the risk of the operation, and she said "no." I then asked her if it was really true that she had used the umbrella rib and it had disappeared, as stated, and she replied that "she didn't know." In such a state of affairs, I felt that it would be utterly unjustifiable for me to go on with laparotomy, and I accordingly ordered that the instruments which had been made ready should be put up. In a week after this the woman died.

The husband utterly refused to have an autopsy made; but, as I was unwilling to give a certificate of death without learning something more about this obscure case, I insisted on placing it in the coroner's hands, and was thus enabled to obtain a post-mortem examination. The result of the examination was as follows: I found a non-pregnant uterus of normal size and just to the right of the cervix uteri there was a puncture of the vaginal wall, evidently made by the umbrella-rib mentioned. Through this orifice the rib had gone, and as it passed up-

ward through the abdominal cavity it had scraped the surface of the liver. After transfixing the diaphragm, it penetrated the right lung to the extent of two or three inches, and in this position it was found at the autopsy. It was, no doubt, a spasm of the diaphragm, resulting from the irritation of the rib piercing it, which had caused the sudden snatching upward of the latter, as described by the husband in his narrative.

The rib was thirteen inches in length, with its point somewhat sharpened, and surrounding its upper extremity, in the lung tissue, there was an abscess, which had not as yet discharged, but from which septic influences had emanated.

\*This case, at the time of its occurrence, was published in detail in the American Journal of Medical Sciences.

This recital is "pat" to the theme of this paper for had that physician weighed "major consequence" he would not have countenanced what he considered a "minor procedure."

There is no use to decry the former wide use of the curette—for they were but "Stepping Stones" to present achievement. The important thing for us, is, to use that stairway—to surgical safety. This involves a knowledge of Surgical pathology, surgical skill and above all, surgical conscience.

If we must curette, and that expresses the proper attitude, we curette when we must, let us then do so, promptly, gently, efficiently and safely.

For illustration let us consider that we are raking a lawn that is fan-shaped—Let us consider further that we are raking from base to apex and have used fifty strokes.

Obviously, each base angle will receive one stroke while the apex will have received fifty.

Now the uterine cavity is fan shaped—or to be exact it is the frustrum of an inverted cone. Obviously in using twenty-five strokes—each base angle will receive one, and, as they converge to the os—that surface will have been combed twenty-five times.

If we follow the old instruction to scrape until we hear the grit, the microscope will reveal muscle fibers among the debris which mean injury to the utricular glands—so necessary for reformation of mucosa.

When should we curette? For then only we will curette, if we have due regard for major consequences.

First, for diagnostic purposes when we are seeking evidence of malignancy at the fundus—ONLY.

Second, in retention of septic material following abortion—ONLY, and AFTER other mechanical means have failed to clean out

the uterus and stop the hemorrhage.

Third, that class of cases that involve polypi and hydatiform mole.

I should say never, otherwise, for therapeutic purposes—just as I decry curettage, *pari passu*, in treatment of the cervix—or preliminary to hysterectomy.

And finally never until the surgeon has satisfied his mind by a legal and praiseworthy "Estimate of the Situation."

What could be more distressing than for a surgeon, through carelessness, lack of investigation or by deception to be led to curette a pregnant uterus; perforate a wall, without being able to do an immediate laparotomy; or to set up a hemorrhage that he could not control.

Hemorrhage, protein poisoning, suppurative arthritis, tetanus, blood stream infection, peritonitis, pelvic abscess, death, stenosis, sterility, salpingectomy, ovariectomy, hysterectomy, disgrace, divorce, destruction of foetal life, murder, jail, penitentiary, the noose and the electric chair, to say nothing of dreadful melancholia during the declining years—major consequences these, and all have come from a curette in the hands of man.

Any uterus during the years when curettage might be considered, is, at least, potentially pregnant, as the X-ray has often revealed.

There is more trouble tied up in that little loop of steel than in all other known metals, with the possible exception of the silver dollar.

I do not condemn the curette. It has earned its "place in the sun," in its wise, skillful and legitimate use, with proper technique.

The simple code which I have outlined will enable a surgeon to "steer his course" free from all moral and Medico-legal pitfalls, and still permit him to use this efficient means to an end wisely, efficiently, safely and commendably.

He will then have earned the respect and commendation of his fellow-man and the eulogy; that what e'er he did, he did wisely, legitimately and commendably in the light of major consequences.

## TONSILLECTOMY\*

LEO JACOBS, M. D.

Covington.

Tonsillectomy is today the most commonly performed surgical operation. Relatively there is no operation so fraught with disaster, nor is there an operative procedure where the dangers are so frequently underestimated or entirely disregarded as here.

This sense of false security from the accompanying dangers of a tonsillectomy has, I think, been brought about by the failure of the surgeons to publish records of their post-operative complications and fatalities and is not due to a lack of knowledge concerning them.

The object of this paper is not to rehearse all the academic knowledge we have at our command regarding the anatomy, histology, bacteriology, pathology and indications for removal of the tonsils but to re-acquaint you with the more common ill effects noted before, during, and after the operation, and to bring before your attention some procedures which, if instituted, would prevent entirely or, to a great extent mitigate these complications and fatalities.

**Pre-operative Care:** After you have decided that a tonsillectomy is indicated you must also decide if the patient is in such a physical condition as will permit the operation, and whether the procedure shall be done with a local or general anaesthetic. Thus the patient must have a physical examination and a pre-operative preparation as complete as for any major surgical procedure.

The patient is instructed to thoroughly alkalinize themselves, either by taking baking soda or drinking Vichy water. A cathartic is taken the morning of the day prior to the operation. No food is injected for at least 18 hours before the operation. Upon admission to the hospital another coagulation test and urinalysis is made. When the patient is an adult a hypodermic of morphine and atropine is given one half-hour before the operation, the dose depending upon the age and weight of the individual.

The alkalization of the patient is of great value. It helps to counteract the acidosis which is sometimes induced by an ether narcosis, it will lessen the amount of local post-surgical edema, and it seems that the period of convalescence is shorter after alkalization.

**The Anaesthetic:** All children are operated upon under ether narcosis. In adults we use either a general or a local anaesthetic

\*Read before the Kentucky State Medical Association, September 16-18, 1930, Bowling Green.



depending upon the preference of the individual, assuming, of course, that his physical condition permits a choice of anaesthetics.

In doing a tonsillectomy under ether narcosis the patient is kept, as far as possible, in the primary state of anaesthetic. In this stage the cough reflex is present and is an invaluable adjunct in the prevention of pulmonary abscess. Many observers have, at the completion of a tonsillectomy, introduced a bronchoscope into the trachea and report that in approximately 76% of the cases examined, blood, or blood and mucus were found in the trachea. It does not follow that an anaesthesia which is maintained with the patient in the primary stage will entirely alleviate this condition but it would certainly tend to decrease its occurrence.

While doing a tonsillectomy under ether anaesthesia we keep the patient's body in a plane parallel to the floor, instead of using the Trendelenburg position as some surgeons advocate. The reason for this is to prevent, as far as possible, the insufflation of blood into the Eustachian tubes with the production of a subsequent involvement of the middle ear, as the ostia of the tubes are relaxed and partially opened during the anaesthetic.

In an operation done with local anesthesia it has sometimes been noted that there will follow a deep cervical infection which may terminate fatally. Recently, Shapiro reported thirty-eight cases of deep cervical infection following tonsillectomy. In 94% of all the cases reported the operation was done under local anaesthesia. He says, when local anaesthesia is used three points are essential in the prophylaxis: a proper technic of injection; the evidence of contamination of either the needle or the solution, and a minimum period of two weeks before the last acute attack and the operation.

We have adopted a technic whereby we use a needle which is as short and small as is consistent with our needs. No deep injections are made, the needle only going under the mucosa. We inject just enough anaesthetic to raise a bleb at the point of entrance. This is done at the superior and inferior pole of both the anterior and posterior pillars on either side. The tonsillar tissue is never injected.

Since the adoption of this technic we have not had any post-operative cervical infections.

Occasionally, in a nervous high strung patient we paint the entire tonsillar area, the oropharynx, the soft palate and the base of the tongue with a weak cocaine-epinephrine solution. This is of great help and is well worth the time it takes to perform it.

The Operation: I do not believe that there is a surgical procedure where more methods of technic have been proposed, nor where so many special instruments have been designed by men who claim superior advantages by their use as here in the tonsillectomy field. All of which means that there is no standard academic technic. In his period of preparation every operator evolves a technic which is best suited to himself and which he modifies to fit the case with which he deals, so it is advisable for one to continue with that method which gives him the safest and most satisfactory results.

The primary object in the operation is to remove all the tonsillar and adenoid tissue, if any, with as little trauma, as is possible, to the surrounding tissue.

The second important thing to do is to completely arrest all hemorrhage before the patient is allowed to leave the operating room.

For many years we have made a practice of suturing all bleeding points at the time of the operation. Occasionally where there was much bleeding we have put in as many as ten sutures in one fossa to arrest the hemorrhage.

Just before we permit the patient to leave the operating table we retract the anterior pillar and gently massage the fossa with a sponge on a sponge stick.

If there is present an erosion of a blood vessel this procedure will cause bleeding to commence anew. Should there be any, we suture the bleeding point and then reinspect the fossae.

Post Operative Complications: The most common operative complication is hemorrhage either primary or secondary in nature. Any hemorrhage that develops within twelve hours after the operation should be considered as primary in nature as is, I think, in the great majority of cases, due to faulty technic on the part of the operator. Hemorrhage that develops later than twelve hours after the operation is usually of a secondary nature.

We have at our command many procedures which, if instituted, may check a post-operative hemorrhage. These may roughly be divided into two groups. First, the use of chemical compounds applied topically to the bleeding area which through their chemical or physiological action upon the region will produce a hemostasis. In the second group we find those methods employed whereby physical pressure is exerted upon the bleeding area through the use of the pressure plug or ligatures.

Adrenalin is the best example of the com-

pounds that physiologically produce a hemostasis. When this solution is applied to a mucous membrane there follows a blanching of the surface which is due to the direct action of the drug itself upon the muscular wall of the blood vessels whereby a vaso-constriction is produced. This method of hemostasis is of little value when the bleeding is more than an ooze and has the added disadvantage that following the constriction, which is at best temporary, there often occurs a marked vasodilation thus increasing the amount of hemorrhage.

Monsells solution is the most typical drug used whereby the hemostasis is chemically produced. When applied to a tissue it combines with the protein of that tissue to form an insoluble albuminate. It is our hope that when applied to the bleeding fossa that the hemorrhagic point will be incorporated in this dense mass of coagulated protein. If the bleeding is checked all is well, but if not accomplished one is in a far worse position than previously, for he now has to contend with the dense coagulum through which it is impossible to inspect the fossa. Should removal of the coagulum be indicated one will find it to be most difficult.

The two chief means of accomplishing hemostasis through the exertion of physical methods are by the use of the pressure plug and by the aid of ligatures.

The great disadvantage to the pressure plug is that unless it is sutured in place one must watch it rather closely or the patient while coughing or gagging may expel the plug into the throat. Many serious complications and fatalities have been caused by such an expulsion. Then if the plug is sutured in situ and permitted to remain for any length of time it will be found to be most difficult to remove, an anaesthetic sometimes being necessary. A plug that remains in the throat for as much as twenty-four hours will produce a most disagreeable odor and taste. This is due to the presence of an inert foreign body accelerating the growth of the saprophytes which are normally present in the mouth in small numbers. This odor and taste may only be alleviated by the removal of the plug.

From a modern surgical standpoint there is one and only one way to completely arrest a hemorrhage, and that is by ligation of the bleeding vessel. I can see no logical reason why a procedure which is carried out in other accessible parts of the body should not be instituted here in an area that is easily accessible.

I realize that the ligation of bleeding points, both at the time of the operation and

later if there be a hemorrhage requires some practice and a little dexterity on the part of the surgeon. But in the past two years many new instruments have been devised which have greatly facilitated this procedure, although the ordinary needle and needle holder can be used successfully. This procedure is coming into general use more and more every day and soon, I hope, it will be universal.

I do not know of any single point in the technic of a tonsillectomy which relieves the mind of both the patient and the surgeon as far as a hemorrhage is concerned than the routine use of ligatures to check bleeding, nor do I know of a better way by which we can discharge the responsibility to ourselves and our patients of doing our best for their safety.

**Lung Abscess:** Lung abscess is a most serious-tonsillectomic complication. As to the actual mode of production little is known. Some observers think that it is due to the aspiration. Others think it embolic in nature. Most probably it is a combination of both. From the above theories it would seem that if due consideration were given to preventive measures that the occurrence of lung abscess would be markedly decreased. Pierson aptly sums up the preventive measures in the following manner.

1. Pre-operative complete examination with special reference to the lungs. Operation should be delayed if there is an acute infection of the respiratory tract; some of these show no signs in the lungs, the patient complaining only of cough. Chronic or recurring bronchitis should be cleared up as much as possible by rest in bed, etc., before the operation.
2. Hygiene of the mouth before operation. This refers to the removal of teeth that are obviously abscessed.
3. Any form of anaesthesia should not be carried to the point of abolishing the swallowing or cough reflex and should avoid forcing foreign material through the larynx.
4. Use of a good suction apparatus which has a small bored tip.
5. Avoidance of unnecessary crushing of tissue and mass ligations, which favor the formation of thrombi.
3. Care of the mouth immediately after the operation.

**Ear Ache:** As a post operative complication ear ache is of frequent occurrence, especially is those cases where the adenoids have been removed at the same time. It may be very severe and culminate in a mastoiditis, but, as a rule, it only lasts for a few days



and is controlled by the instillation of warm glycerine into the ear.

There are two possible explanations of this ear ache; first, that it may be due to blood or infected matter getting into the eustachian tubes; and second, that in cases where the adenoids have been removed that the pharyngeal ostia of the eustachian tubes become closed by pressure exerted by the post operative edema in this region thus giving rise to a slight transitory catarrhal otitis media.

Even though the ear ache is, as a rule, slight and easily controlled, it behooves us at the time of the operation to keep the entire pharynx clean as possible, to be as gentle as possible when removing the adenoids, and to keep the patient, if in a reclining position, in a plane parallel with the floor.

The above are the most frequent complications noted. Others, however, occur but they are rare, and there are no particular precautions which, if instituted would, prevent them.

Conclusion: In conclusion may I again call attention to those major precautions which are invaluable if the case is to be handled in the safest and most satisfactory manner. They are:

1. A thorough pre-operative physical examination.
2. The use of some technic whereby complete hemostasis is assured.
3. The use of a good suction apparatus so that the pharynx may be kept constantly free of blood, mucus and infected matter.
4. The use of a degree of anaesthesia which, at least, preserves the irritability of the laryngeal and tracheal reflexes.

**Creatinuria in Tuberculosis**—Examination of the urine of fifteen patients done by Thompson indicates the presence of creatinuria in pulmonary tuberculosis, febrile or otherwise. Repeated analysis demonstrated not only a fluctuation in the creatine output over a period of time but a variation in the total creatinine production as well. Creatinuria may not exist in all cases or in all stages of the disease, but its omission is rare. The cause of this urinary abnormality is undetermined, but since it persists after the disease is arrested Thompson suggests that it may be due to and may be a measure of certain tissue destruction during the active phase. The phenomenon of creatinuria in tuberculosis is not confined to man.

## INTRAVENOUS MEDICATION\*

BEN B. KEYS, M. D.

Murray.

Only a few years ago the injection of drugs into the circulation was considered a very dangerous practice and was looked upon as rather a radical therapy. But today it has become a well-recognized therapeutic method of administering drugs and almost everything in the pharmacopeia is prepared in the form of an ampule for intravenous use. The indications for intravenous medication are many and varied, some of which are as follows:

First. Increased blood volume, restore failing circulation and combat dehydration.

Second. To combat toxemia.

Third. To supply glucose or energy.

Fourth. To combat acidosis.

Fifth. To supply certain salts specifically indicated.

Sixth. To effect dehydration as in increased intracranial pressure.

One should not resort to intravenous therapy until he has thoroughly familiarized himself with every detail of the technic, the observance of which will enhance the comfort and safety of the patient. The manner of technic is of paramount importance and many of the disturbing reactions and dangers of this form of therapy can be minimized by the proper attention to details.

The technic of asepsis should be as rigorous as that for any other surgical operation. If rubber tubing is used, as in the gravity method, it should be selected to insure its freedom from any toxic substances. The needle should be as small as will serve in every instance. It should be extremely sharp and the point should have a very short bevel to prevent injury to the vein. It should be given as painlessly as possible to the patient. There is some excuse for not getting into the vein, but none for putting the injection into the surrounding tissue, thus giving rise to an area of infiltration, causing pain and local thrombosis and incidently failing to achieve the object desired.

Usually the site in the bend of the elbow is chosen, here it is more accessible and less covered by fat, but I do not think it matters where the injection is made. I usually use a tourniquet above the elbow to bring the veins into prominence, but in some patients you have to either insert the needle by feeling the vein, or use a local anaesthetic and make an incision down to the vein and insert the needle.

\*Read before the Kentucky State Medical Association at Bowling Green, September 15-18, 1930.

According to Dr. Matas, the dangers from the air embolus and thrombus have been very much exaggerated while it must be admitted that neither of these dangers is negligible and accidents from these causes may occur, but that it had never been observed in his experience. He states that it is quite well proved by experimentation that it is only the sudden and forceful injections of large quantities of air into the veins that is at all likely to be followed by embolic manifestations.

Only freshly distilled water should be used in making up these solutions, and some authorities insist that it be redistilled as much as two or three times before being used. The water should be collected and kept in glass receptacles to prevent chemical contamination. In general only such drugs and agents should be used as are of established purity, and when this cannot be determined by chemical examination, or by animal experimentation, it should not be used.

All of these solutions should be well sterilized and since heat changes or decomposes some of the preparations used intravenously, we should be very cautious in their preparations. If a dextrose solution turns brown it is unfit for use. Those solutions should conform as closely as possible to the reaction of normal blood which is slightly alkaline. These solutions should be nearly isotonic with the blood, especially so when the volume to be given is at all large, however, the important exceptions are the use of hypertonic solutions for the purpose of influencing total blood volume, intracranial pressure, and other conditions in which the abstraction of water is desired. As a general thing, intravenous injections should be given slowly. Rapid administration is sometimes very dangerous—first, by overwhelming the heart and circulation with too great a volume of fluid; second, the likelihood, especially in the case of active drugs, of having them carried to the heart, and central nervous system or other vital structures in dangerously high concentrations.

It is often advantageous to resort to intermittent injections permitting satisfactory dilutions by the blood streams, and allowing the heart time to empty itself of these concentrated solutions.

The risk of intravenous injections frequently outweighs its benefits; as in greatly weakened patients, the aged, at times patients with hypertension, arterio sclerosis or heart disease, patients known to be or suspected of the following: hypersensitive to one or more proteins, such as patients with asthma, hay fever, or urticaria, and patients known to have drug idiosyncrasy.

Formerly the maintenance of proper temperature was a matter of much concern. We usually try to deliver our fluid to the vein at 100 degrees F. But according to Dr. Geo. A. Hendon, of Louisville, there is quite a safe variation in the temperature of fluids given. In case of shock or subnormal temperature the fluid can be given at 110 to 120 degrees, F., or the fluid may be administered at room temperature, or as low as 60 degrees F., to control excessively high temperatures.

Sodium Chloride solutions have long been administered intravenously to combat various forms of toxemia. In the toxemia accompanying high intestinal obstructions or stasis, which is usually evidenced by vomiting, dehydration, etc., these symptoms are very much alleviated by the administration of one liter of 1% solution of Sodium Chloride once or twice a day. In cases of pyloric obstructions the risk of surgical operation may be greatly diminished by a pre-operative intravenous injection of Sodium Chloride. In cases of long standing illness and where inanition is marked, the administration of glucose solution of 5 or 10% is advisable. In post operative cases of gall bladder showing dehydration, the patient is much benefited by 5 or 10% solution of glucose intravenously. In pernicious vomiting of pregnancy 500 to 5000 c. c. of a 5 or 10% solution of glucose should be used daily for four or five days.

In diabetic coma, it is important to attack acidosis promptly and also to provide fluids in large quantities. The subcutaneous administration of insulin will usually suffice for the control of the acidosis, but if the alkali reserve persists to a very low level, it may be restored by intravenous injections of one liter of a 5% solution of Sodium Bicarbonate—give one liter of liquid every six hours.

As above stated there are a great many drugs branded for intravenous use on the market, but only standard and tested preparations should be used. The different iron preparations, arsenic, mercurchrome, insulin, normal saline, glucose, adrenalin, quinine, practically all the glandular products, hexomethylene, sodium salicylate, sodium iodine, and many others, all have their uses when properly applied.

The intravenous route has much to recommend it, but whatever channel the drugs are given, they must reach the circulating blood. Therefore, it would appear to be only logical to get them straight into the blood stream. But intravenous medication given careful handling, and by using it, one must err on the side of caution since there



are numerous dangers in intravenous therapy.

Dr. John Howard Frick, of Philadelphia, suggests that when giving large amounts of intravenous injections and the patient begins to suffer with severe backache, it is a signal to immediately cease the introduction of the fluid. If your injection is continued the patient may suffer a respiratory or cardiac collapse or both. The ability of the circulatory system to take an added volume varies with each individual. In some few instances he states that he has been able to give 1000 c. c. at one time and at other instances only 200 c. c. was sufficient to produce this reflex pain in the back. Needless to say an increase in pulse rate should always indicate a cessation of the injection.

In giving large intravenous injections the blood pressure should be watched constantly and if you get an increased pulse pressure, it is an indication to cease immediately.

According to Howe, of New York, who made many experiments on animals with various drugs, states that dextrose is non-toxic and says that he has never seen it result in the slightest disturbance of respiration or cardiac action, no matter how much had been given or how quickly it was administered. He states that he has given 50 c. c. of 100% solution in less than one minute without any untoward action. But evidence of supersaturation should be watched for; some of the signs that the patient is getting too much fluids are increased lacrimal secretions, edema of the eyelids, or hyperstatic pneumonia.

The only food which can be administered intravenously is sugar. Among the sugars the one most generally employed for this purpose is dextrose. Dextrose solution can be administered in as concentrated form as 30% solution, and in considerable quantity, provided it is given slowly enough.

The limits to the amount of sugar that can be introduced in this manner is set by the ability of the system to assimilate it, and by the permeability of the kidneys. Wood, Wyatt, Sansum and Wilder, who studied the dextrose tolerance of men by means of prolonged accurately timed intravenous injections of sugar, found that adult men and women of average size, weight and nutrition begin to excrete abnormal quantities of dextrose in the urine when the injection rate into the vein is above 0.8 Gm. and below 0.9 Gm. (about 0.85 Gm.) per kilogram of body weight hourly. From this it will be seen that a person weighing 70 Kg. would tolerate up to 63 Gm. of dextrose, yielding approximately 252 calories, per hour. This

means that, in giving 10% dextrose solution intravenously, the flow should be so arranged as to consume at least an hour's time in the introduction of 500 c. c. If it is introduced much more rapidly, a considerable portion of it is apt to be excreted in the urine. If such injections were continued throughout the day, 6,048 calories would be introduced in the course of the twenty-four hours, which would be double the caloric income required by the resting person. Hence, it may be asserted that intravenous nutrition with dextrose is clinically feasible.

In conclusion, let me say:—

1. It may be fairly stated that when large volumes of solutions must of necessity be injected intravenously, to replace blood volume, for instance, they should be isotonic with the blood.

2. Long experience on a wide scale in attempting to inject remedies for their therapeutic effect has conclusively demonstrated that large volume is in itself the cause of untoward reactions.

3. Research with certain U. S. P. and standard remedies has demonstrated that they are fully adaptable for intravenous injection in concentrated or hypertonic solutions. Such a solution contains the full therapeutic dose in a volume of from 5 c. c. to 20 c. c. In other words, a solution need not be isotonic with the blood stream if a small volume only is injected.

4. Practical clinical demonstration on an extensive scale has proved conclusively that these small volume solutions, when properly prepared and controlled, have made intravenous injection a safe and practical office procedure and have enabled the practicing physician to inject intravenously some thirty odd U. S. P. and standard remedies.

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**Experimental Trials of Vaccination Against Tuberculosis.**—Ottolenghi describes the experimental trials of antituberculosis vaccination by the Calmette-Guerin method, as carried out in Bologna in 1926. He states the criteria followed in the evaluation of the effects: direct scrutiny, clinical research and statistical studies. After calling attention to the difficulties encountered in such studies, he surveys the observations collected thus far, which do not, however, permit, as yet a final judgment, aside from the fact that the vaccine is harmless. The clinical control tests that are now being made will possibly soon permit a fairly accurate appreciation of the value of the method.

## SPINAL PUNCTURE\*

B. W. Smock, M. D.

Louisville.

Our historical record in regard to spinal puncture, as we understand it today, begins some time during the decade preceeding 1891, when Quinke entered the spinal canal at the fourth lumbar interspace with a strong needle. There had been numerous attempts to drain cerebro spinal fluid prior to this, but in all of these cases an incision was made through the skin and a trocar was introduced to the spinal canal. So today, it is to Quinke that credit must be given for developing our present technique. For a period following this numerous attempts were made to treat and relieve Hydrocephalus and T. B. Meningitis by means of drainage of the spinal canal. However, after only temporary relief these cases became worse and proved fatal, but Quinke felt that he proved conclusively that spinal puncture was indicated in cases of increased intracranial pressure. Quinke measured the pressure of the fluid and examined it chemically and physically although more or less in a crude manner. Following the publication of the results of Quinke and his followers, many punctures were done in Europe, as well as in America, with varying therapeutic results, until at the present time lumbar puncture is more or less a routine diagnostic and therapeutic procedure. Lumbar puncture serves us in three distinct capacities: First: As a diagnostic aid. Second: As a therapeutic agent itself and also affording us with means of introducing therapeutic agents and Third: As an Anesthetic means par excellent.

Diagnostically it is of the greatest help to us in acute and chronic cerebro spinal infections as well as traumatic conditions of the brain and cord. The laboratory being of the greatest help in the knowledge and information collected on the chemical, serological and cell characteristics of the physiological and pathological nature of the spinal fluid. Another aid in diagnosis of disease, neoplasm, and injury to the central nervous system has been the advent of the water and mercury Manometer for determining the pressure of the spinal fluid. It's normal range being from about five m. to ten m. n. hg. Another means of diagnostic study of the central nervous system afforded us by spinal puncture is the x-ray, by means of a ventricular graph performed by a combined ventricular and spinal puncture, for study of the brain and its ventricles or the injection

tion of Lipiodal for study of the spinal cord and canal alone.

As a therapeutic agent spinal puncture is used less frequently, but when required it cannot be satisfactorily replaced with any other agent. In the treatment of acute tetanus, and cerebro spinal meningitis it offers us more than any other remedy. In the treatment of cerebro spinal syphilis both with mercury and arsenical preparation there is ground for much discussion; some feeling that it is of the greatest aid and others feeling that it is contraindicated. In more recent years spinal puncture has come to serve us more and more in the treatment of increased intracranial pressure from hemorrhage. Dr. Charles Frazier advocates the use of two (2) spinal drainages a day when the pressure is increasing and there is evidence of overwhelming medullary pressure. However, this is done only with the greatest precaution, not to drain off the fluid below a point some several m. m. above normal spinal pressure. He further remarks that, "I have never seen any ill effects from lumbar puncture so practiced and can testify to its efficiency as a means of relieving pressure." This procedure I feel is also of a great aid in treatment of apoplexy often relieving unconsciousness and when conscious, the severe headache and restlessness.

Spinal puncture was first used as a means for introducing anesthetic drugs into the spinal cord by Bier in 1898 when he injected cocaine at the lumbar level, but he abandoned it because it was too toxic. When Einhorn discovered novocain in 1904, spinal anesthesia was again used and its development continued until at present, we have the refined and safe technique as developed by Gaston La Bat, and other workers in this field. This use of spinal puncture is rapidly increasing and I believe that before long, it will undoubtedly be the most generally used anesthetic procedure of all.

The instrumentarium for spinal puncture should consist of a small 1. to 2. c. c. Luer syringe and needle for the injection of novocain into skin and subcutaneous tissues. The needle used for puncture must fulfill the following conditions: First: It should be of medium gage (1.1 m. m. thick) so as to avoid too rapid withdrawal of the spinal fluid and to leave an insignificant wound of the dura which will close immediately after withdrawal of the needle. Second: Its point must be sharp so as to give one the feel of the tissue it traverses. Third: It should have a short bevel so that its point will not injure the cord after the whole

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bevel has passed the dura. Fourth: It should be about  $3\frac{1}{2}$  to 4 inches or (80 m. m.) in length. This will serve for all individuals, however, it might be too short in a very fat patient. Fifth: It should be unbreakable but not bend too easily. Nickel needles are to be preferred to steel and platinum. Sixth: The needle should also be fitted with a stylet. Depending upon the type puncture made, diagnostic, therapeutic, or anesthetic, the following equipment is necessary. For diagnosis it is necessary to have sterile test tubes graduated (ready for collection of fluid) and a manometer. For anesthesia, the anesthetic agent to be used, a sterile container for mixing solution, if the drug does not come in one. A large (hypo) needle and 10 c. c. Luer syringe for aspiration of the fluid in mixing container and for introduction into canal through spinal needle in situ. In using spinal puncture as a therapeutic agent we are furnished the serums with convenient outfit for immediate use.

The operator now follows the usual method of cleansing the hands surgically with brush and soap, rinsing hands in alcohol afterward. It is advisable to wear sterile rubber gloves and gown. The spinal puncture is best made with patient sitting on the edge of a table feet resting on a chair or stool, back arched and leaning a little forward upon assistant. If patient is unable to sit up, the puncture can be made with the patient lying on either side with the assistant arching the back by pulling the knees and chest together. In the case of spinal anesthesia, it is most important that patient be immediately placed on back and in Trendelenburg position. The usual landmarks followed are the iliac crests and the 12th rib. A line drawn from one posterior iliac crest to the other will pass over the fourth lumbar spine or the interspace between the fourth and fifth lumbar vertebrae. A line measuring five c. m. dropped from the 12th rib will pass over the spinous process of the 12th dorsal vertebrae. The most usual site for puncture is the third and fourth lumbar interspaces. A rectangular space is now prepared aseptically. Best with ether and alcohol. The better technique requires that the field be draped with sterile towels. The point of puncture is now ascertained by palpation and 1 to 2 c. c. of novocain injected first into skin and then subcutaneous tissues. This needle is withdrawn and the spinal puncture needle taken up. The skin over the interspace selected is now drawn tense between the forefinger and thumb of the left hand the hub of the spinal needle is now taken between the thumb and

forefinger of the right hand and the point placed midway between the spinous process in the midline. The needle is now introduced through the skin, its position being verified before advancing to deeper structures. After assurance of position, the needle is passed deeper in a perpendicular line. Resistance is met as the interspinous ligament and the ligamentum subflavum is passed which is soon lost and the needle is passed more gently and gradually until the dura is pierced. The passage of the needle through the dura transmits to the finger an impression that can be compared to the snapping of stretched membrane. The progress of the needle is now stopped and the stylet gently removed to prevent any movement of the needle. After removing the stylet from the needle cerebrospinal fluid will flow or drop from the needle, (according to pressure), if the needle is in the subarachnoid space. If after repeated punctures of the dura at different levels cerebrospinal fluid is not obtained then it is said to be due to a so-called "dry spine." Dry spine is mentioned by Gerstenberg, Hein, Lush, and others as a condition where the arachnoid is adherent to the cord thus obliterating the subarachnoid space. After the subarachnoid space has been entered and proven by escape of fluid any one of the type procedures desired may be performed.

There are quite a few dangers and contraindications for spinal puncture, as in all other medical and surgical procedures, some of which are real and should be classified while others are only the brain child and hobby of some bitter opponent. Those things to be most carefully guarded against are the possibilities of carrying infection into subarachnoid space. This can only happen through a breach of technique which should bring discredit to the operator rather than the method. Then there is the possibility of an injury of the cord with the needle which is rare and never happens at the lower levels or segment of the cord. Contraindications are found in increased pressure in the inferior chamber from neoplasms, hemorrhages, etc. Occasionally in large hemorrhages and tumors of the upper brain which encroach upon the inferior brain. In summary, it might be said that any relief of pressure below, which would allow the increased pressure above to force the brain stem into the foramen magnum would constitute the chief objection.

Now in conclusion I feel that spinal puncture with its three fold accomplishments, diagnosis, therapuesis, and anesthesia offers us one of our most useful implements for combating disease, and is one that should and

will be used by all, ever remembering that it must be used only with the greatest of precaution.

### DISCUSSION

**A. McKinney, Owensboro:** I feel that the first paper we had on curettage of the uterus should not go without some discussion. I have been practicing medicine now for forty years. I have been by myself a great many years of this time where I had to take the whole responsibility of the patient, with no one to help me.

We are all doctors. We have all sat at the feet of the learned. I don't believe in this idea that a fellow has to be a classical surgeon and one of national reputation to do a curettement. I should like to know, when they did their first curettement, if they were so skilled as they are now. There is no use to make a bugaboo out of the thing to scare the medical doctor off. I know very well we all have postpartum hemorrhages. That is due to a small retained placenta, possibly not larger than your thumb nail. Unless that comes away you are liable to have a continuous hemorrhage. It may come away of its own accord in a few days and the hemorrhage stops, but I have seen many times when it didn't come away. There is very little risk, in my opinion, if the patient is anesthetized and you have cleaned up your instruments and have irrigated the uterus to make sterile the field as much as possible, in slipping a blunt curet up into the uterus and gently removing it. I take it that we are all doctors and know about those things. You don't have to scrape the cervix of the uterus every time you make a little stroke; you can make the strokes short, clear up to the fundus if you want to, and come down, and you don't have to scrape the cervix with every stroke of the curet. The general practitioner who has had instruction is competent to do a curettement, in most instances, if he is competent to practice obstetrics.

**B. S. Rutherford, Bowling Green:** I rise in defense of my brother who has just been seated. I don't know who he is, but I reckon we are both old enough to be called old-timers. I have been practicing forty-five years, whereas he has been practicing forty, and neither of us is old.

I think it was about 1895 that as a practitioner in a little village nine miles south of here I began doing curettage. I did it repeatedly. I have seen patients who were invalids who were suffering with fungus growths on the mucous membrane. I never counted the strokes I made; I don't know whether I made forty to the fundus and one to the cervix or not. I went to the top and came to the bottom gently, easily, and by one's tactile sense one can become familiar with the condition and know when you have curetted enough. One simply removes those fungusities and you get results. Time

and again, thirty-five years ago, I did this with marked relief. I have taken women who were invalids and put them on their feet and made strong women of them.

I admit that that has dropped into disuse to some extent. I have followed the profession, and I practically quit it, too, because the rest of them did, and it has been quite a while since I have done a curettage, but I think really it is something that should be done carefully. You can do a great deal of damage by rough usage, but when it is indicated I am sure a great deal can be done by curettage. The cases for this operation should be carefully selected, for conditions might exist which would render it unsafe.

**J. T. Reddick, Paducah:** If you will permit me, I will say just a few words about curettage. I enjoyed the discussion of our two young friends here. I can go them a little better; I have been practicing medicine fifty years. (Applause.)

The question of curettage is now decidedly a moot question. Some of the leading authorities take the position that it is almost criminal, that it is almost malpractice to go into the uterus in this kind of cases. I believe that we ought to, and I believe it is proper practice.

I think Polak and probably others take the position that we must keep out of the uterus in this kind of cases, but when you have a little particle of placenta there, as one of the gentlemen has said, you are liable to have a hemorrhage, you may have a septicemia from the retention of a part of the amniotic membrane. I think it ought to be gotten away. Many times I have seen a temperature rise to 104 or 105 from these little particles that are left there, and if they are removed, the next day the temperature is down and your patient is on the road to rapid recovery.

This matter of advocating letting these cases alone I don't think is proper treatment. I think we ought to go ahead and remove the decomposing tissue and cure our patients in preference to letting them go along and perhaps take on a toxemia or a condition much worse than a so-called septicemia. I just want to endorse that treatment of getting rid of these particles.

**Guy Aud, Louisville:** I was very glad to hear Dr. Koontz condemn curettage in the way he did. I agree with him, however, that there are certain very definite indications for curettage, particularly in the post-abortive conditions and in puerperal conditions.

I got up for the purpose of making this point in condemning curettage as a therapeutic agent in the treatment of chronic endometritis. Personally I think it is absolutely useless.

It was my privilege to see a number of cases in which a diagnosis of chronic endometritis



was made, in which it was necessary to remove the uterus for other conditions, fibroids, and so on. We took these cases just before the hysterectomy, and placed them on the operating table and did a curettage as thoroughly as we could possibly do one. Everyone at the operating table agreed that the patient had been thoroughly curetted. We immediately did a hysterectomy, and then we split the uterus open and were amazed to find how little of the endometrium we had removed.

**L. P. Molloy, Paducah:** Mr. President, I look upon these as very unusual papers. As Dr. Jacobs very wisely said in the beginning, it is more of a question of personal technic in doing a tonsillectomy, each man selecting his own technic. We have no complaint to make against that.

As for anesthesia, I believe I favor a gas anesthesia for tonsillectomy. I am not going to fall out with anybody in regard to the anesthetic, but the main thing is the safest anesthetic. The position in which we are able to place our patient, doing either a local or a general in any thorough form of tonsillectomy, as he has indicated.

It seems to me in doing the dissection method after the tonsil is removed, instead of ligating and putting anywhere from one to four or five sutures in the throat, we could more easily and safely control the hemorrhage by simple pressure. I see no reason why we shouldn't save time by it, even, in the great majority of cases that I have seen we rarely have to do anything. That has been my experience, even in clinical work; we have very little trouble, especially with children, in regard to hemorrhage. A sterile hemostat is certainly a very safe thing to have even if you are using the dissecting method. You can immediately place your hemostat on, control your hemorrhage, have a perfectly dry throat to do the opposite tonsil, use the same technic on the other side, and if you are still afraid of hemorrhage your hemostat can be slipped on and you have a perfectly dry throat to remove your adenoids and control the whole thing without any suturing at all. I believe that in 99½ per cent of the cases you will get by with it nicely. To my mind it is a safer procedure than the sutures.

Of course, other methods of tonsillectomy are done so much quicker under gas anesthesia. Men who use Sluder instruments rarely have any form of hemorrhage to contend with because it is done so quickly. They don't want over a minute in which to do the operation and the patient is then placed immediately on his face with his head lowered and there is hardly a chance for any trouble there. Your patient hardly has time even to aspirate anything in the lungs. Of course, the main thing

is to guard against a lung abscess, which is right and proper, but I believe in that method you have a safe if not a safer procedure to control hemorrhage.

**R. H. Cowley, Berea:** In regard to hemorrhage, after a rather extended experience I agree with the essayist absolutely. Every bleeding vessel should be caught and a suture passed under it and tied. I used to clamp the vessels crushing the tissues so that the bleeding was stopped when the patient left the table but too often the bleeding started later. Since I have been suturing with curved round needle and 00 chromic gut I go to bed following a tonsil clinic and sleep with no thought of hemorrhage.

Often a vessel is left down between the base of the tongue and the fossa which continues bleeding and is not noticed till the patient vomits a large amount of blood. On completing the tonsillectomy this area should always be carefully inspected to make sure that no bleeder is left.

If one does have a postoperative hemorrhage the best little trick I have ever practiced is to find the bleeding point and with a tonsil syringe inject some novocaine and adrenalin right at the spot. This will usually stop the bleeding but if it does not do so it renders the area anaesthetic so that a suture can be introduced and tied just as at the operation and with no discomfort to the patient, I rarely find it necessary to suture in young children but with them as with adults I do not let them off the table till the hemorrhage is stopped. This usually happens of its own accord if one is patient and waits a few minutes using moderate pressure.

**E. C. Walter, Mayfield:** The use of intravenous medication has come into vogue in the last twenty-five years. We are told that the ancients of the Seventeenth Century were desirous of using intravenous medication, namely, the blood of other individuals or animals or such drugs as they had, but were afraid of the consequences. I think the thing that has given us the greatest stimulus for intravenous medication has been our knowledge recently acquired of blood chemistry. There was a time not so many years ago when along about our sophomore year in school we learned a little blood chemistry and then heard nothing more about it. Today we all know blood chemistry. We know of blood sugars and N. P. N.'s and so forth. That has given us much stimulation in intravenous therapy.

To my mind there are four outstanding things in intravenous therapy. The first is the use of whole blood. The thing that has stimulated that has been our knowledge of the grouping of patients. The second has been the use of normal saline solution. That has saved thousands

of surgical patients who came off the operating table in shock.

Along that line, the work of Anderson and Lockhart, working at the University of Maryland in blood chlorides, has been valuable. They found that these individuals that normally had from 400 to 500 milligrams of chlorides were reduced to about 200, and following their work the widespread use of a hypertonic chloride solution, using a ten per cent solution of sodium chloride in a ten per cent solution of glucose, has done much to relieve these desperate surgical cases.

The third thing is the use of glucose. We all are familiar with the use of that, especially in the patient who has a diarrhea or the vomiting of pregnancy.

I think our field of intravenous therapy is just on the threshold. As our knowledge of blood chemistry increases we will find many other chemicals that we can use to combat diseases.

**Leo L. Jacobs, Covington, (Closing):** May I thank the two gentlemen for their comments on my paper. The reason we started suturing the bleeding points in tonsillectomies was because we felt much more comfortable after we had gotten through with the tonsillectomy knowing that we could go home and almost forget about them. The patients also felt more relieved because they were not bleeding.

That isn't a very hard thing to do. Almost anybody can do it with just a little practice, and there have been some instruments devised recently that are just perfect so far as putting in sutures is concerned. They are made on the order of forceps and there is no trouble at all to do it. You grasp the bleeding point just as if it were a pair of hemostats that you were working with, and your suture is automatically pushed under the bleeding point and it is only necessary to tie it.

The use of luminal, as Dr. Cowley said, will certainly help you a great deal as far as doing the operation is concerned. We have never tried it, but I have heard and read reports of men who have used luminal or drugs of a similar nature and they find it to be very, very satisfactory.

#### Treatment of Arthritis "Rheumatism."—

Shahon stresses the point that there is no specific treatment for arthritis as yet but several modes of treatment have been adopted by several workers in this field with marked appreciable results. The skilled use of physical therapeutic measures, massage, hydrotherapy, postural exercise, external heat, diathermy, chemotherapy and nonspecific protein therapy, such as typhoid vaccines and milk, have benefited many patients.

## ABDOMINAL PAIN IN ACUTE ILLNESS FROM OTHER THAN ABDOMINAL VISCERA\*

CHARLES G. DAUGHERTY, M. D.

Paris.

The occurrence of pain in the abdomen simulating inflammation of viscera or contained abdominal organs, apparently requiring an immediate surgical operation is the *bete noir* of the operating surgeon.

The surgeon who wishes to do the best for the patient and who does not wish to be discomfited, embarrassed, or chagrined is fortunate who numbers among his consultants an internist whose experience and diagnostic acumen enables him to sidestep an operation on a purely medical case.

The so-called operator who has the reputation of operating on anyone who will "stand still" will operate needlessly on many medical cases with high mortality. Thanks to the registered, standardized hospitals with pathological reports on tissue removed, there exists some check on this type of surgery. Yet there exist some cases that will always be puzzles in spite of all known procedures of investigation. I hope this paper may lead to the consideration of some of the confusing conditions. Pneumonia leads all extra abdominal causes of pain in the abdomen in acute illness, simulating appendicitis in local tenderness at McBurney's point, sometimes even with rigidity of the entire right rectus region. Careful physical examination of the chest with the ear in the inter-scapular space will often disclose a deep-coated central pneumonia developing; subcrepitant and crepitant rales may be heard before consolidation is evident. The blood count is usually in the 30,000 group—too high for the usual appendix. Increased respiration rate with a corresponding pulse, soon a grunt or respiratory whiff, and a reddened cheek may put us on the right track.

Diaphragmatic pleurisy is one of the common causes of pain in the abdomen under the ribs, suggesting abdominal inflammatory disease, and on account of few rales to be heard or friction rubs often puzzles the surgeon. I have brought a child to the hospital, apparently with an acute abdomen, almost in shock from pain and course followed in treatment who when warmed up on way to town, showed temp. 103, resp. 40, pulse 140 with blood count of 37,000, and a rosy cheek, who subsequently showed an empyema of

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the right diaphragmatic area. An adolescent girl had an exploration of entire abdomen after examination by numbers of well trained surgeons and internists without finding any pathology before the diaphragm. A patient was brought to the alcoholic pavillion in Bellevue Hospital, during my service there, suffering from delirium tremens, who had a croton oil blister over McBurney's point with rigidity of right rectus. I found a central pneumonia, of right lower lobe which went to stage of gray hepatization, resolution, spot of gangrene haemo-pyo-pneumo-thorax and death.

One physician exhibited him in clinic as case of pneumonia confusing to surgeon. Another said he had had appendicitis burrowing up posterior abdomen, causing linear pneumonia, etc. Still another said he had had "gall bladder or liver abscess" previously extending as cause of pneumonia. Autopsy disclosed pneumonia and chest complications only.

Pericarditis according to numerous articles consulted often is present simulating the acute abdomen leading to exploration under anesthesia. Pericardial friction observed might have prevented the unnecessary operation.

Angina pectoris, coronary occlusion and angio spasm of mesenteric arteries has lead to operation with fatal results. The age of the patient past sixty, cardiac and blood pressure, observation and consideration of coronary thrombosis with pain referred to the abdomen instead of across the chest and down the arms might have prevented a fatal operation.

Neuritis and costal neuralgia of the end of a floating rib in a short waisted individual, or along the eleventh or twelfth rib confuses as to gall bladder, gastric or duodenal disease and required amputation of the end of the rib according to one case cited.

Inflamed posterior mesenteric glands following are present in acute stage of influenza in some cases going on to suppuration as disclosed in Cook County autopsies following the pandemic cause abdominal pains hard to diagnose, and may, through extension causing angulation of intestine, intestinal obstruction and through course an acute abdomen as in one of my cases the past year.

The latter case is probably the result of tubercular involvement in a case treated in the past ten years as an incipient tubercular patient, and though acute involvement like the colic of lead poisoning, gastric crises of loco motor ataxia, pains from caries of the spine while acute are dependent on chronic disease and belong to the paper of my dis-

tinguished confrere, Dr. Charles C. Lucas.

Nephrolithiasis with acute kidney colic or Dietl's crises often confuses especially when right sided and the fact that 60% of the cases requiring removal of stone from the right kidney pelvis, have previously had an appendectomy, shows the possible error in diagnosis. Consideration of this cause, blood in the microscopic specimen of urine and pyelography with the new intravenous solution of "uroselectan" should be helpful in differentiation. Past history should help though both are present occasionally in the same individual.

Allergy or anaphylactic phenomena in food poisoning occasionally clouds the picture in the acute abdomen. One of our distinguished confreres had several attacks apparently of obscure appendicitis with abdominal and intestinal disorder and distress which disappeared following the discovery in treating migraine or migrainous headaches that he was allergic to egg albumen. Another case following food poison from eating canned pork and beans showed tenderness at McBurney's point, right rectus rigidity a high leucocyte and polynuclear count when seen by a surgical and medical consultant which count was substantiated by ourselves and yet in one hour or two later no abdominal symptoms were present and represented as much the necessity of amputation of a great toe as for abdominal exploration. People don't die from eating too much.

Small pox and acute pains of influenza occasionally cause right abdominal symptoms as evidenced by operation at hospitals with which I am conversant. One of them was operated on in Paris. In speaking of this case, Dr. Will Savage, who was formerly a resident of our town and lives at Cincinnati, told of his experience in operating on a man who had a pain in his right side. He didn't think he had appendicitis, but the consultant of the referring physician had lost a patient by delaying operation and insisted on operation. The patient himself said, "Take out my appendix, and if there isn't anything wrong with it, I won't be to blame." Two weeks later that patient broke out with smallpox and the hospital was quarantined for six weeks. Attention is called by authorities consulted to the occurrence of pain in the abdomen suggesting the need of surgical interference in acute disease of the throat in children, abdominal pain being present before attention is directed to the throat. It seems that children have poor ability to localize pain and that pain in the throat is carried from cervical to dorsal seg-

ments of nerves, and thence to the abdomen, the inhibitory influence not being fully developed as in adults.

In this I would not cause anyone to "dwell in a fool's paradise of safety," because it is well known that appendicitis is much more prevalent after tonsilitis, and four times as prevalent after epidemics than otherwise one author calling the appendix the abdominal tonsil.

Hysteria and uraemia with their protean simulation may confuse as to abdominal pain, but the evidence of hyperaesthesia on the one hand, with other stigmata and blood pressure and urinary analyses should prevent an error, though we should bear in mind that both conditions may be present in the latter.

Herpes Zoster occurring in course of lower ribs causing pain in abdomen may confuse until eruption appears.

A very peculiar case arose a few years ago of a man who had been sitting on a telephone pole. He had a rigid abdomen and a great deal of pain on the right side. One of our surgeons operated on him, and when this man's abdomen was opened the appendix was found not acutely inflamed if even chronically inflamed. This man had an acute myositis following injury from pressing on the telephone pole, and the right rectus muscle was twice as thick as the left.

Another thing that causes very acute pain is hypoglycemia following the deprivation of insulin when a patient has had more insulin than he should, causing acute pain in the abdomen.

**Value of Dick Test.**—Coste et al. performed two series of experiments to determine the value of the Dick test. In the first series, 108 patients were given successive injections of the standard toxin. In the second series 91 patients were injected not only with the standard toxin but with other forms, especially erysipelatos toxins; also several patients were given a single injection of 100 skin units of the standard toxin. The results in the two series of tests were practically the same. In about half of the patients the reactions were either positive or negative to all the injections. In some the reactions were positive at first, then negative after from three to eight injections. In others (about one-fourth of the total number) the results were wholly inconstant, shifting from positive to negative and back again. The Dick test cannot therefore be considered as an infallible proof of receptivity or immunity. It is merely a secondary element in the streptococcic theory.

## ABDOMINAL PAIN FROM CAUSES OTHER THAN LESIONS OF THE ABDOMINAL VISCERA IN CHRONIC ILLNESS\*

CHARLES G. LUCAS, A. B., M. D., F. A. C. P.

Louisville.

Quite a number of conditions giving rise to abdominal pain are causative factors without involvement of any of the abdominal viscera.

Tabes, undoubtedly, gives rise to very severe attacks, and, while the crises affect the stomach more often than any other organ, ureteral, kidney and gall bladder crises have been observed. Cases have been operated for supposed obstruction in the pylorus, when the real cause was tabes. In one case, so operated, the pain was most severe and the vomiting marked and prolonged in the attacks that came closer and closer together. The necessity for a most thorough examination is apparent; it requires only a short time to develop the previous history, test the reflexes and coordination, and to make the Wassermann or Kahn on both the blood and spinal fluid. It may be necessary, where these signs are absent and the clinical evidence pronounced, to employ a provocative arsphenamin. Changes in the spinal cord itself, as in tumor between the fourth and twelfth dorsal vertebrae are often accompanied by abdominal pain. As these growths are most often endotheliomata, the prognosis for relief by operation is usually good. Transverse myelitis, or even that rare condition, carcinoma of the spinal cord, may give rise to abdominal pain and require careful study to be ruled out.

Arthritic changes in the spine, discovered in the course of the usual routine gastro-intestinal x-ray examination, have cleared up the etiologic factor in not a few cases of obscure abdominal pains. The internist owes much to the careful Roentgenologist, and, as Pemberton suggested about ten years ago, if these changes were due to improper assimilation of food, and could be benefitted by regulation of diet, it behooves us all to watch all roentgenograms in cases of chronic abdominal pain. In this category may also be included tuberculosis of the spine.

Disturbance in function of the pituitary and thyroid may also be responsible for abdominal pain. Years ago Englebach called attention to cases of hypopituitarism, where the chief complaint was constant and severe

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pain in the region of the appendix. This pain, persisting after removal of the appendix, would be relieved by use of pituitary. This is an important observation and may explain why quite a number of cases operated for "chronic appendicitis" do not get relief.

In a recent paper by Gilman and Kay<sup>1</sup>, a most interesting case is reported, among others, and I have taken the liberty of quoting the report in full:

"Mrs. A. W., aged seventy-two years, widow, complained of stomach trouble consisting of discomfort two hours after eating, gas and frequent cramps in the lower abdomen. In addition fatigability and weakness were symptoms. All of these had been present for two years. Lately the symptoms had become worse. The patient had been told she was suffering from a diseased gall bladder and colitis.

"Examination showed a fairly well preserved and nourished elderly woman. Her eyes were rather bright but otherwise negative. There was a very slight enlargement of the thyroid, which was firm and apparently finely nodular. No bruit was heard. The heart was slightly enlarged and of the aortic type. The apical tones were rather loud with a soft systolic murmur and the second aortic moderately accentuated. The heart's efficiency was judged to be about 80 per cent. The aorta was moderately widened and of the arteriosclerotic type. The radial vessel walls were moderately thickened; the pulse 80 per minute and the blood pressure 150 over 70. The abdomen showed some tenderness to deep pressure in the gall-bladder region and over the sigmoid colon. There was a moderate-sized fibroid of the uterus. The reflexes were normal.

"Although this patient when first examined appeared to be composed, on further observation she was found to be nervous. Her palms were always slightly warm and moist but the extended fingers showed no tremor. She gave a history of having been quite active until two years ago, since when she had tired much more readily.

"Our first impression caused us to accept the previous diagnosis of gall-bladder disease and colitis. Ulcer of the duodenum was also considered. In addition we made a diagnosis of arteriosclerosis of moderate grade with aortitis and myocarditis. Further a mild grade of hyperthyroidism was suspected and a basal metabolism taken which was normal. A roentgen-ray study of the gastrointestinal tract showed no organic lesion.

"The patient was kept under observation for about a year and a half, during which time she showed periods of improvement.

During this entire time her complaints were referable for the most part to her gastrointestinal tract. The cramps in the lower abdomen were complained of more than ever and were frequently accompanied by diarrhea. It was noted she became more nervous and tired more readily. Her pulse rate remained about the same and her basal metabolic rate rose as high as plus 13. During the course of treatment Lugol's solution was given, following which, for a time, her symptoms were much less, but later were increased.

"Finally the observable increase in nervousness, palpitation of the heart, slightly moist warm palms and the effect of iodine in addition to the complete failure of other treatment led us to suspect the small, finely nodular thyroid gland as the cause of the patient's symptoms. We hesitated to operate because of her age and lack of definiteness of demonstrable thyroid participation. Consultants blamed the cardiovascular system and colitis for the patient's condition, but later felt it would be worth while to eliminate a possible thyroid element by operation as the patient was getting nowhere.

"At operation the thyroid gland was found to be larger than had been previously suspected and was riddled throughout with small adenomata. The largest of these was not over 3 mm. in size. The greater part of the gland was removed.

"After an uneventful convalescence all of the patient's symptoms disappeared and she has been well now for two and a half years."

An unusual cause of abdominal pain was a report by Alger, quoted by Behan<sup>2</sup>, where severe abdominal pain resembling that due to appendicitis was caused by eye strain. The pain disappeared when proper lenses were adjusted, but returned four years later when the glasses were lost.

While we are always on guard for a possible pulmonary explanation of many acute abdominal conditions, it is quite possible to have marked abdominal pains in chronic pulmonary tuberculosis, and I quote from Pottenger<sup>3</sup>, the following:

"In many instances the prolonged irritation and inflammation in the lung stimulates reflexly the parasympathetics to such an extent that there is still a marked increase in motility and secretory activity in the gastrointestinal tract, in spite of the marked stimulation of the sympathetics produced by the toxemia. It is extremely common, therefore, to find in our patients suffering from chronic pulmonary tuberculosis, various degrees of hyperacidity and hypermotility. Reflex nausea and vomiting are frequently found during the stages of activity in this

disease. This is not wholly due to the toxæmia, as explained in the past, but may also be due to reflex stimulation of the vagus. These symptoms appear very commonly when cavities are being formed and marked irritation of pulmonary tissue is present. At the same time, we have increased tonus in other branches of the vagus nerve. Spastic constipation, intestinal stasis, colicky pains and colitis are common. Motor and secretory disturbances on part of the larynx are found; and a pulse, lower than would be expected by the amount of fever, is frequently present.

"In the intestines the hypermotility affects both the circular and longitudinal fibers. If it affects the circular the more, constriction of the bowel takes place, interfering with the onward passage of the ingesta, resulting in colicky pain, spastic constipation and more or less stasis. If the increased muscular tonus affects the longitudinal instead of the circular fibers, then the ingesta hastens on and a loosening of the bowels and diarrhoea results."

Myocardial disease is attended with all kinds of abdominal manifestations from fullness and heaviness, nausea and vomiting, to all degrees of pain. To the layman, the gas, belching, fullness, pressure and pain means one organ, the stomach. In myocardial disease, with enlargement of the liver, the patient complains frequently of dull constant pains in the upper abdomen. The same complaint follows in decompensation due to the passive congestion of the stomach. I can not deal here with the abdominal pain produced by acute coronary obstruction, but it often takes in all the aspects of perforated viscera, mesenteric thrombosis, gall stone colic and acute pancreatitis. In some cases of coronary disease, there may be what are really mild anginal attacks, which the patient believed were attacks of "acute indigestion."

Of late years, due to the work of Duke, Rowe, Alexander and others, much attention has been given to allergy. According to Alexander, allergy expresses itself by two lesions, edema and smooth muscle spasm. In some cases, due to the ingestion of the offending food, severe and acute symptoms may develop, but usually the common form is the milder and more chronic type of pain. Duke, states that

"Abdominal allergy is prone to occur in individuals who have organic lesions in the alimentary tract or its appendages—in fact, in more than 50 per cent of the cases that have come under my observation some definite organic disease, such as chronic appendicitis, gall stones, dense adhesions, extreme ptosis or ulcer, has been found. Relief of these lesions by treatment has occasionally

been followed by relief of sensitiveness, but this result has been by no means constant. It seems probable that with patients with allergic tenderness a definite pathological lesion in the alimentary tract tends to focus the illness in this locality."

Allergy cases develop hypersensitiveness to an increasing variety of substances as they grow older. May it not be possible that a few of our patients with chronic abdominal pain might be relieved by careful search for a possible alimentary allergy?

In attempting to give you in this limited time, a hasty review of the causes of abdominal pain from causes other than lesions of the abdominal viscera, I have said nothing about focal infection, but I can not close without referring to one of several reports by Dr. Borden S. Veeder:

This particular case "was a young boy of three years who had been having recurrent attacks of spasmodic colic with pain centering about the umbilicus. These attacks would lead to an upset with loss of weight which had kept him at a stationary weight for over a year when he first came under my observation. It had been found that atropin was about the only source of relief, and his parents had finally come to rely upon this at frequent intervals. He had been taken from one physician to another, both in Europe and America, and his parents possessed a collection of diet sheets that could only be classed as weird and wonderful in their contradictions. For some reasons, the fact that the child had a chronic hypertrophy of the tonsils and adenoids and that there were definite signs of chronic infection (adenitis) had been overlooked, or not considered of etiologic relationship. Believing that such types of recurrent pain are toxic in origin, it was insisted that the tonsils and adenoids be removed preparatory to any further treatment. This was done and at once the attacks of abdominal pain ceased. The child began to put on weight and improve immediately. Since then—some three years in all—the condition has not returned and the child's development has been uninterrupted."

All the above proves that the necessity for thorough examination is always present. While in the majority of cases where the abdominal pain is acute, the correct diagnosis is difficult enough to make, it is somewhat easier than in many of the chronic cases. Complete and repeated physical examination, the employment of all laboratory facilities, including x-ray and basal metabolic estimation, are necessary, and, if our labor is successful, may we not feel as Dr. Gilman, whose thyroid case I reported above: "A great compensation to us was the feeling of



gratitude and encouragement that these patients demonstrated after long periods of discouragement with their seemingly hopeless condition."

## REFERENCES

1. Gilman, P. K. and Kay, W. E. Remote Symptoms of Unrecognized Thyroid Adenomata. *Am. J. Med. Sciences* 1930 CLXXX 405.
2. Behan R. J. Pain. New York. D. Appleton and Co. 1914
3. Pottenger, F. M. Symptoms of Visceral Disease. St. Louis, C. V. Mosby Co. 1919.
4. Duke, W. W. Allergy, Asthma, Hay Fever, Urticaria. St. Louis C. V. Mosby Co. 1925.
5. Veeder, Borden S. Med. Clinics of North America, Vol. 2, No. 2.

## DISCUSSION

**John W. Scott, Lexington:** When one sees a patient in whom the presenting complaint is severe abdominal pain, the question is bound to occur whether this pain arises from some lesion in the abdomen or from without the abdomen. Dr. Daugherty has enumerated these causes without the abdomen in excellent detail. He has also discussed some of the differential points of the lesions within the abdomen, which really is without the scope of this discussion.

Two sources of pain from lesions without the abdomen so far preponderate that they almost exclude other causes. These two sources are the lungs and the heart. Almost all the cases which have this symptom that do not have abdominal disease have either pneumonia with its attendant pleurisy, or possibly the pleurisy without the pneumonia, (because it is the pleurisy which gives the pain,) or they have a coronary or cardiac affair.

Considering pneumonia in the differential diagnosis of disease of the lung and disease in the abdomen, one is impressed with the fact of the similarity of symptoms that may exist. In both cases one finds fever, acceleration of the pulse; he finds pain which may be referred to the abdomen; he may find rigidity of the abdomen; he may even find vomiting. There is also increase of the polymorphonuclear cells of the blood. These, however, are apt to be, as Dr. Daugherty has pointed out, in very much greater number in pneumonia than those which occur from intraabdominal inflammation. They are apt to run above the 20,000 rather than below. The fever also is apt to be high in proportion to the symptoms rather than the relatively lower temperature of the acute abdominal lesion.

However, the critical findings are those discovered upon physical examination of the chest, the findings of pleurisy or of actual consolidation of the lung.

In addition to this, in most cases, ones clinical impression will be of a lung affair, rather than an abdominal affair. The increased respiratory rate, particularly, in relation to the pulse rate adds to this impression of lung disease.

The other condition which is most often confused with abdominal inflammation is cardiac disease. Here occlusion of one of the coronary

arteries is the usual cause of the pain. The pericarditis which Dr. Daugherty referred to no doubt had its origin in infarction following upon a coronary occlusion. This coronary occlusion is a not infrequent thing. The fact that it is confused with disease in the abdomen is reflected by the layman's idea that these attacks are due to acute indigestion. The thing really presents the complete clinical picture of acute abdominal inflammation or accident—pain, shock and leucocytosis of perhaps 20,000, vomiting, rigidity and tenderness in the right upper quarter of the abdomen. When the patient is in the first shock of the occlusion one finds that the pallor differs from the pallor of the acute abdominal catastrophe. There is a certain element of cyanosis, a combination of blueness and pallor which is very striking and in contrast to the pallor of ordinary shock.

Then, too, the pain is rather different. The pain, if one inquires closely into it, has in it an element of constriction in addition to the severe abdominal distress.

Upon examination of the heart we find that we are impressed rather with what we do not hear than what we do hear. The heart sounds are distant and muffled, the apex is barely palpable; there is no tumult; the heart's action does not seem really troubled.

Of the diagnostic criteria of the coronary accident among the most significant is the marked fall in blood pressure which these patients suffer. If the pressure had been high previously this information may be necessary to determine the fall.

**Jas. A. Orr, Paris:** Mr. Chairman and Gentlemen of the Society: This is indeed a very important subject, especially as the subject under discussion is the differentiation of conditions in the chest from those in the abdomen. Generally speaking, the pathology of the abdominal viscera is a surgical condition, while that of the chest is a medical one.

It might be well to recall a little of our nervous anatomy in thinking of these reflex conditions, or reference of chest pathology to the abdomen. The central portion of the diaphragm, the Crura and Central tendon, and corresponding pleura are innervated by the Phrenic nerve, which has its origin from the third, fourth and fifth cervical segments, while the costal or peripheral region of the diaphragm and corresponding pleura are innervated by the lower six intercostal nerves, arising from the lower thoracic segments. The abdominal viscera, are also innervated by nerves arising from the lower thoracic segments. This would explain the reflex pain from irritation of these nerves in the diaphragmatic region in pneumonia and pleurisy, and how this reflex is extended out into the abdomen.

As has been stated by the essayist, pneumonia

or diaphragmatic pleurisy is probably the most frequent cause of this reflex condition. It is the pleurisy of the pneumonia, as Dr. Scott has said, that causes the pain of pneumonia.

This phenomenon more often occurs in children, and probably is accounted for by the fact that the inhibitory centers are not so fully developed in the child as they are in the adult. It is one of the laws of reflex action that the intensity of the stimulus is modified by central control. This probably accounts for the fact that children more frequently present this condition than adults.

Pottenger has called attention to the fact that in hemorrhage of the lower lobes of the lungs we may get a severe pain in the abdomen, which is accounted for by the irritation which the hemorrhage causes to the nerves supplying the diaphragmatic area, which have their origin from the lower thoracic segments. This also accounts for the severe pain that often occurs in collapse of the lung. Adhesions may be present at the base of the lung between the visceral and parietal pleura. The collapse causes a pulling on these adhesions and thus through this reflex causes severe abdominal pain.

**Guy Aud, Louisville:** I think the papers of Dr. Daugherty and Dr. Lucas are extremely interesting ones. They are particularly interesting from the surgical standpoint. It is just as important and it is just as much a mark of a good surgeon to know when not to operate as it is to know when to operate. Consequently, I feel that the surgeon is paying just as much attention and is just as anxious to make a correct diagnosis before he operates as the medical man is, and naturally it is very commendable upon the part of both.

It is the acute condition that we are confronted with most, and the one that gives us the most concern. The acute conditions are ones, of course, that require immediate attention. In the chronic cases, naturally we have more time to devote to the study of them, and consequently we are more apt to be correct in our diagnosis.

Cases frequently are brought into the hospital with a diagnosis of some acute intra-abdominal condition, and really it requires a great deal of study, a great deal of thought in order to determine definitely whether or not this patient has a so-called acute abdomen.

I believe of all the acute conditions, pneumonia is the most complicated. There are certain types or cases of pneumonia that come into the hospital that tax the best diagnostician to make a correct diagnosis. Some of these cases have only very small areas of involvement; they are deeply situated in the lung, and the physical findings are practically negative.

Of course, we have the facilities with which we can make a correct diagnosis; the x-ray will

tell us absolutely whether or not this particular case has a pneumonia. Consequently, if we are in any doubt at all, the patient should be submitted to an x-ray examination.

The next most common thing that troubles us in the acute cases is pleurisy, particularly of a diaphragmatic type, and usually, of course, pleurisy is part and parcel of a pneumonia. Pleurisy is a difficult thing frequently to diagnose, but usually if we exert ourselves sufficiently we can make a positive diagnosis whether or not the patient at least requires operation, and there are no reasons, usually, in these cases why we should not delay for a short time and give us sufficient opportunity to study these cases before we operate on them.

The next most important of the acute conditions is coronary occlusion. We surgeons are occasionally accused of operating on these cases. I don't think we are very often guilty. I do believe that years ago before we had the proper means of making correct diagnoses in many of these cases, this error probably was more or less common, but I don't believe that good surgeons that have the facilities of good hospitals are now making this mistake.

In the chronic cases we are confronted with a different problem. Fortunately in the chronic case we have plenty of time, as Dr. Lucas and Dr. Jennings have told us, to thoroughly study our case. Usually when a mistake is made in a chronic case, it is due to devoting insufficient time and insufficient effort toward making a proper diagnosis.

Tabes dorsalis probably in chronic cases is occasionally overlooked. Most of the symptoms are referable to the stomach. In looking up the statistics we will find that most of these cases have been operated on for a supposed gastric or duodenal ulcer. However, some few cases have had crises referable to the kidney and some crises referable to the gall-bladder. Some of these cases have come to operation.

With proper study of these cases, with proper history, with thorough examination of the reflexes, with the blood and the cerebrospinal Wassermanns, there is very little excuse for operating upon them for a supposed gastrointestinal lesion.

**Spontaneous Pneumothorax.**—In two of the cases reported by Symes-Thompson it was presumed that the pneumothorax was caused by the rupture of an emphysematous bulla, but no demonstrable generalized emphysema of the lungs was present in either instance. Pulmonary tuberculosis was not present in either of these cases or in the third case, in which the pneumothorax was a complication of asthma. The fourth case was one of pulmonary tuberculosis in which spontaneous pneumothorax developed while the patient was undergoing artificial pneumothorax treatment.



## THREE CASES OF LUES\*

RICHARD R. ELMORE, M. D.

Louisville.

The three cases herein reported were encountered in my general practice. None of the patients gave a history of lues until presented with a positive Wassermann reaction.

The object in presenting these case records is to emphasize the value of persistent, energetic treatment extending over a term of years, and to call attention to the duration of treatment that may be necessary for the production of a negative Wassermann reaction.

CASE I. Mrs. U., aged 37 years, came under my observation June 10th, 1924, with general symptoms of malaise, and she tired easily, she had muscular soreness, marked irritability, mental concentration difficult.

Nothing was discovered on general physical examination, except erosions of the cervix.

This patient had been under the observation of excellent physicians, and every effort had been made to eliminate focal infection by extracting all her teeth and by a tonsillectomy.

When a four plus Wassermann reaction was presented to the patient, it was learned that her former husband's habits had not been above reproach, and that he had killed himself.

The first Wassermann test, June 10th, 1924, was four plus. Treatment was inaugurated at once and faithfully followed. On September 19th, 1925, the Wassermann reaction was negative. A third Wassermann, June 4th, 1926, two years after the diagnosis was established, was also negative.

Should this patient be dismissed as cured? She was symptom-free, in splendid health, she had two years of vigorous treatment, and two negative Wassermann reactions to her credit. The possibility of recrudescence was presented to the patient and continued treatment was advised. This advice was followed.

Five months later, November 18th, 1926, the Wassermann reaction was doubtful, and on April 20th, 1927, five months afterward, the Wassermann was four plus and the patient thoroughly discouraged, but with some encouragement continued treatment. Six months later, October 16th, 1927, the Wassermann reaction was negative, and again on October 4th, 1928. Fourteen months later the Wassermann was negative and the patient was dismissed. The Wassermann reaction in June, 1930, was negative, a period of

three years since the last positive Wassermann

CASE II. Mr. F., aged 31 years, came under my observation February 8th, 1921, because of irritability, excitability, inability to relax, and weakness in arms and legs.

Aside from blood pressure of 100-80, little was determined by physical examination.

When confronted with a four plus Wassermann reaction, he related that on his first sexual adventure, while still in his teens and attending high school, he had met with misfortune and contracted syphilis. It was at this time salvarsan came on the market, one dose being regarded sufficient to produce a cure. This boy was given one dose, presumably in the vein, but from the history, mostly in the perivascular tissues as his arm swelled to the size of his leg and a painful cellulitis destroyed the function of his arm for several weeks.

During the next thirteen years he had taken intermittent treatment and had been pronounced "cured" two or more times, the last "cure" having been effected prior to his marriage. The need of long continuous treatment was explained to him and he agreed to follow it.

The first positive four plus Wassermann reaction, February 8th, 1921, was followed by a three plus seven months later, September 9th, 1921. The first negative Wassermann occurred December 3rd, 1921, then a weak positive April 3rd, 1922, and a still stronger positive five months later, September 9th, 1922, or nineteen months after treatment was started. But two and a half months later the reaction was negative, November 25th, 1922, another negative May 3rd, 1923, also on August 28th, 1923, and a negative February 2nd, 1924, three years after starting treatment, being the fourth consecutive negative in about one and a half years. A fifth negative was added July 9th, 1924, and a weak positive was reported January 12th, 1925, then a negative on September 9th, 1925, another negative one year later, September 3rd, 1926, and still another negative fifteen months later, December 5th, 1927. This covered a period of approximately six years observation, in four and a half of which the Wassermann reaction was practically negative.

CASE III. Mr. M., aged 54 years, came under my observation March 29th, 1926, complaining of numbness of his left arm and leg, fullness in the throat, husky voice, pain in back of neck and head.

This patient gave a history of having had a cold followed by hoarseness. A club luncheon brother offered to treat him, and did so

\*Read before the Jefferson County Medical Society,

for several weeks with little effect. This doctor, on leaving the city, turned the patient over to his assistant who made a correct diagnosis, and informed the patient that one vocal cord had disappeared and the other one was hopelessly damaged, and that his normal voice would never return.

With this gloomy prognosis in mind, the patient consulted and was treated by various irregular practitioners, concluding with the "Abrams treatment."

When the patient came under my care his temperature was 99.2 degrees F., pulse 100, blood pressure 170-105, weight 203 pounds. There were many questionable teeth, with pyorrhea alveolaris, and creamy purulent material was expressed from both tonsils. No glandular enlargements were detected, and the tendon reflexes were normal. The Wassermann reaction, March 30th, 1926, was four plus. Treatment was pushed as vigorously as possible, an extensive arsenical dermatitis slowing medication at intervals.

March 24th, 1928, two years after treatment was started, there appeared the first gleam of hope toward a cure, the laboratory report reading a weakly positive Wassermann, with a doubtful appearing two months later, May 12th, 1928, and a three plus four months afterward, August 15th, 1928, about two and a half years after treatment was started.

Some difficulty was experienced in persuading the patient to continue treatment, as he was certain that he would never be well again. A negative Wassermann reaction, December 6th, 1928, was encouraging. It was followed by a second negative July 13th 1929, and a third negative in January, 1930. Meanwhile his voice had returned to its normal tone and all indications of cardio-vascular involvement had disappeared, although the patient remained overweight. In June, 1930, the Wassermann reaction was negative.

These patients were given similar treatment. A unit of treatment consisted of four to six doses of neoarsphenamine, .45 to .9 gram each, intravenously, two doses per week; and mercury cyanide, one per cent solution, .5 to 1.5 c.c. given intravenously twice weekly until fourteen to sixteen doses had been administered. Three to four units of treatment were given yearly until clinical symptoms had disappeared and a negative Wassermann reaction had prevailed for two years or longer.

## WARTS\*

WILLIAM J. YOUNG, M. D., F. A. C. P.

Louisville.

While the cause of warts is unknown, their infectiousness has been demonstrated and is an accepted fact. They are commonly divided into four varieties: (1) verruca vulgaris, (2) verruca plana, (3) verruca plantaris, (4) verruca acuminata.

(1) Verruca vulgaris is the type so commonly seen on the hands, and is usually treated by acids, curetment, the high frequency electric current, X-ray or radium.

(2) Verruca plana juvenalis is the type which usually appears on the hands or face in childhood, and is occasionally seen in adults. Bichloride of mercury in small doses is used successfully in the majority of cases, and also X-ray locally in fractional doses.

(3) Verruca plantaris is seen as deep-seated warts which may occur at any age—mostly during middle life—on the palms of the hands and soles of the feet. They may be single or multiple, and are treated by curetment and silver nitrate applied to the base of the lesion, or radium or X-ray in massive doses.

(4) Verruca acuminata is a small, pointed lesion and often occurs in great numbers, assuming the form of vegetating growths and



Figure I.

\*Read before the Louisville Medico Chirurgical Society.



## DISCUSSION

**John W. Price:** The case of venereal warts Dr. Young has reported is one of the most extensive I have seen. About twenty years ago I saw similar cases in the wards at the Louisville city hospital. The method of treatment mentioned by Dr. Young, namely: the use of caustics, acids, or the actual cautery, is usually satisfactory. In more recent years I have used the actual cautery more frequently than acids. However, in four or five very extensive cases, where the warts were not treated in the early stages but had been neglected until ulceration had caused tremendous destruction of the vulvar tissues, I have performed vulvectomy. This has really been the most satisfactory procedure I have employed. In one case (previously reported) the patient had almost complete vaginal atresia, there being only two or three needle-point openings in the vagina. The atresia followed the healing of very extensive ulcers which had been treated by cauterization. Vulvectomy in that case was a perfectly satisfactory operation. Before I began using vulvectomy in extensive cases, the patients remained on the ward for months. Some of them would leave the hospital, then return on some other service and practically none of them became entirely well. In those cases in which vulvectomy was performed, the lesions had been present four or five years. All the patients had been the rounds of hospitals in Louisville and elsewhere.

In order to secure favorable results from vulvectomy, prolonged pre-operative treatment is essential to mechanically cleanse the parts before undertaking the operation, otherwise the operative wound will not heal by first intention. In the cases in which vulvectomy was performed the wound was completely closed except at the lower angle where a small opening was left as a precautionary measure to provide for drainage. In all the cases the operative wound healed by first intention, except the angle left open which healed by granulation.

Vulvectomy sounds like a very radical procedure for such an apparently slight disease; but it is not a slight disease in my experience if it is neglected and if the lesion does not heal properly by prompt cauterization in the beginning. In those cases that have been neglected, where the disease has existed without treatment for a number of years, vulvectomy is a very useful operative procedure.

**William J. Young, (Closing):** I have never before seen venereal warts on the face, although it is easy to conceive this possibility in persons who are uncleanly and unhygienic as quite a number of city hospital patients are.

I am glad Dr. Price called attention to the fact that the actual cautery has been successful in certain cases. The main point in treat-



Figure II.

usually found in regions where the skin folds on itself causing a moist surface, and are commonly called venereal warts. These are treated by keeping the parts clean and dry, supplemented by the application of caustics, such as alum, silver nitrate or nitric acid, the high frequency electric current, X-ray or radium.

I am reporting a case of verruca acuminata to show how extensively these lesions may multiply, if neglected and allowed to accumulate, and no attempt is made to eliminate the infection.

## CASE REPORT

A negress, 22 years of age, with a negative Wassermann blood reaction, was seen in the Skin Clinic of the Louisville city hospital the past summer. The groins and adjacent hairy portions of the external genitalia, extending over the labia majora and continuing backward around the anus, were covered with vegetating growths verrucous in character from which exuded a thin, creamy discharge. (Fig. 1). In addition, under the lower lip and on each side of the chin, there were masses of pinkish colored lesions similar in appearance to those of the groins. (Fig. II.)

The main reasons for presenting this case are to call attention (1) to the extent to which such lesions may spread when treatment is neglected, and (2) the unusual chin location involved.

ment is to keep the parts dry and clean. If that is not done we will accomplish nothing.

So far as vulvectomy is concerned: The first picture (Fig. 1) shows the extent of involvement in the case reported. The lesions extend over the vulva, the perineum, around the anus, into the groins and over the inner portion of the legs. To treat this patient according to the method mentioned by Dr. Price would require quite an extensive operation. I do not believe such a procedure is necessary. If these patients are given proper care, treated with actual cautery, acids, or high frequency electric current, they can be cured. We can always supplement this treatment by using X-ray and radium if necessary.

I think it is very unusual to see venereal warts on the face as well as the pudenda. I was sorry to be unable to get a colored picture with black background in this case. The lesions have a pale pinkish color, quite in contrast to the surrounding skin.

### CASE OF PERI-ARTERITIS NODOSA WITH AUTOPSY FINDINGS\*

WOODFORD B. TROUTMAN, M. D.

Louisville.

Male, 37 years of age. Five years ago had the initial symptoms of tabes dorsalis. Also since the onset of this condition he has had a variety of symptoms and complaints which were not characteristic for the average case of tabes.

Certain unusual findings in his history were the following:

About four years ago (one year after the onset of tabes), he complained of a severe neuritis in the right arm, then several months later developed a neuritis of both lower extremities.

In the past year had a severe enteritis with diarrhea and bloody stools; also a nephritis with blood, albumin, and leucocytes in the urine.

On examination of the lungs an apicitis was disclosed with findings very similar to those of a tubercular process at the apices.

In the last few months of life the patient suffered from typical attacks of angina pectoris. Finally a myocarditis was in the foreground and death resulted from a rapidly increasing heart failure.

The blood picture showed a marked decrease in red blood elements and a slight degree of leucocytosis.

Throughout the course of the disease the patient was having rises of temperature simulating some septic condition. It might here

be stated that the diagnosis of peri-arteritis was not made ante-mortem.

At autopsy the following positive findings were noted: Along the pre-capillaries of the abdominal viscera were noted many very small grayish-white nodules of a firm consistency, these were most frequent in the vessels of stomach and intestines.

The liver exhibited an irregular and nodular surface and these same small nodes described above were seen along the small hepatic vessels. There was also present a passive hyperemia with cardiac cirrhosis characterized by a dilatation of the hepatic veins.

The kidneys showed a very irregular and nodular surface and on section several small fresh infarcts were noted as well as the scarred outlines of previous infarcts. Nodes were also seen along the course of blood vessels in the organ.

In the lungs there were nodules along the blood vessels, especially those supplying the apical portions, and there was considerable destruction of lung tissue at the apices.

Heart: Along the ramifications of the coronary vessels nodes were seen and felt and there were many scattered areas of myomalacia of the myocardium.

Extremities: The superficial vessels and also those supplying the nerves showed these same nodules.

The spinal cord showed the usual changes seen in tabes, that is, a gray color and degeneration of the posterior columns.

The brain and its vessels, also the bone-marrow, were free from pathology.

Microscopically, on cross-section through one of these nodes and the vessel to which it is attached, there is noted an infiltration of lymphocytes and leucocytes and a resulting disintegration of the medial coat; however, the wall of the vessel is only affected in the immediate area adjacent to the fibrous node. The entire process reminds one of pathological changes seen in aneurysm of the aorta, and in fact I have seen in the Pathological Museum in Vienna a specimen showing this process in the mesenteric vessels and described and named by Prof. Rokitsky many years ago as Multiple Aneurysmata, and later called Peri-Arteritis Nodosa.

In some other sections examined the process has advanced even to the intimal coat of the vessel resulting in an endothelial desquamation and thrombosis or a proliferative process obstructing the lumen.

Conclusions: This patient had tabes which more or less confused the clinical picture. However, at necropsy the great variety of symptoms is clearly explained by Peri-Arteritis nodosa. It is the opinion of the pathologist

\*Read before the Jefferson County Medical Society.



in this case that there is no connection between the two diseases; that both occurred in this case was simply a coincidence.

The disease of peri-arthritis nodosa may possibly be considered on an infectious basis, as practically all cases described to date give a history of fever and seem to run an infectious course.

### ALLERGY\*

F. M. STITES, M. D.

Hopkinsville.

The term, allergy, has been very generally adopted to cover protein hypersensitiveness in human beings. Hypersensitiveness to other chemicals, to light, heat, and cold have also been included under allergy, but strictly speaking, they should not be so classified. Certain forms of erythema and demographia seen in neurotic individuals are not allergic manifestations but due probably to defects in the vasa motor centers. For convenience, the manifestations of allergy may be divided into five general groups which cover the more common reactions that are met with in this syndrome. Arranged in the order of their importance, these classes are as follows:

(1) The hypersensitiveness to the animal sera used in the various antitoxines. This group is again divided into anaphylactic shock and the more common serum sickness.

(2) Food allergy is also of great importance because of its more frequent occurrence and its occasional severity.

(3) The reaction from pollens rank next in frequency and are wide spread in their occurrence, and sometimes since pollen vaccines have come into common use, the reaction from pollen antigen is not only serious but sometimes even fatal.

(4) The epidermal emanations from animals, dander, hair, feather, etc., is now well known to cause very unpleasant symptoms in sensitized individuals. House dust belongs in this group and is occasionally found to produce asthma in some individuals. This, of course, applies only to the specific dust to which such an individual is exposed, and more specifically to the offending allergen in that particular dust, perhaps from feathers, such as a canary bird; or from pillows stuffed with hair or feathers, or the emanations from pets such as cats and dogs. Therefore, house dust cannot be classed as a specific allergen, but the allergen must be found by a careful examination of the dust with a testing of its various ingredients.

(5) Lastly, the stings and bites of certain insects can produce symptoms varying in severity from urticaria to anaphylactic shock and sometimes death. This classification is more or less arbitrary and might easily be improved on, but at least is concise and readily remembered.

The symptoms of allergy are many and varied but are capable of being arranged into a few groups. Anaphylactic shock, which in some degree is common to every group of allergic manifestations, is the most dangerous symptom but fortunately, very rare. It is most commonly produced by the use of horse serum in the administration of the antitoxines. It varies in severity from a slight weakness complained of by the patient soon after the subcutaneous or intravenous dose is administered, to almost instant death even during the administration of the serum. Shock as mentioned before can occur in allergy from any of the groups just referred to. Duke, of Kansas City, mentions the death of a child within three minutes after it was stung by a wasp. Dr. B. A. Caudle, in a discussion of this subject before the Christian County Medical Society, reported the case of a healthy male relative of his who died in a few minutes after being stung by a wasp.

Duke, in a recent paper published in the A. M. A. Journal, reports severe shock, both in his own experience and that of others, in the use of pollen vaccines. In such cases, it is not always in the use of large doses of the vaccine that shock occurs; sometimes very small doses produce severe shock. Even death from shock in their use is not an impossibility. The same author advises all who use pollen vaccines to have a rubber tourniquet applied around the arm above the site of vaccination, and after the administration of the dose to tighten the tourniquet and loosen it at intervals, thus giving the vaccine in broken doses; and at the appearance of serious symptoms, to incise the site of vaccination, removing the remaining vaccine. This may seem undue cautiousness, but to one who has seen a severe shock or death in such cases it appears a wise course to pursue.

The disagreeable syndrome called serum sickness is a common sequel of the administration of animal sera and usually comes on from five to ten days after the serum has been given. Urticaria begins at the site of the needle puncture and is sometimes confined to this locality, but generally is scattered over the entire body, and the itching and burning of the skin is intense. Often the temperature rises, sometimes quite high, and the joints become involved resembling acute arthritis. All these symptoms subside

\*Read before the Kentucky State Medical Association at Bowling Green, September 15-18, 1930.

in a few days, and no ill effects are left except the increased susceptibility to future doses of the serum.

Symptoms from food allergy are perhaps the most frequent, and well known of all these groups. Many people suffer from these annoying conditions for a lifetime and never consult a physician. They have found that certain foods produce disagreeable symptoms each time they are taken and have learned to avoid such foods. Sometimes a decided dislike for certain foods points to an allergy, and in making a diagnosis of allergy this dislike of foods is often an aid in locating the allergen causing the symptoms; for though the patient would not willingly take these foods, he may be getting the offending substance combined or in another form and not recognize it. Asthma, pure and simple, is not usual in serum reactions, though dyspnoea in shock is marked.

Asthma, eczema, and urticaria are the common manifestations of food allergy, and probably foods are the most frequent causes of asthma, though pollens and animal emanations rank high in its causation. The first thought should be the food, and then other groups can be tested. Urticaria, simple erythema, erythema nodosum, angioneurotic edema, and pruritus are the common skin reactions to food allergy, and in a small extent to serum sickness, as before mentioned, and are sometimes manifested in the local application of an antigen in a highly sensitized individual. This is well illustrated by the child of a butcher, who was highly sensitive to beef. The butcher was in the habit of stroking his mustache with his hand while at his work, and it was observed when he kissed the child on returning home, wherever his mustache touched the child's cheek large urticarial wheal would develop almost at once. (Duke).

Eczema in children, unless it is caused by local infection or irritation, such as a discharging middle ear abscess, should at once suggest a food allergy, and in infancy and early childhood, it will not be difficult to find the particular food or foods causing the disturbance.

Ratner, of N. Y., (Med Cl of N. A. Vol 12, No. 3), claims he has found in case histories of children in his clinic at Bellevue Hospital that excessive eating of certain foods by mothers during pregnancy renders the child sensitive to that particular food substance, and it is a great aid in determining the cause of the child's allergy to question the mother in this regard.

Angioneurotic edema as an allergic symptom, is not as frequently seen as either eczema or urticaria, but when it appears in

the mouth or throat it is urgent that it be arrested at once, for occasionally the larynx is involved and strangulation is imminent.

Pruritus, simple erythema, and erythema nodosum are not commonly seen as symptoms of allergy but do occur, and allergy must be suspected in all such cases.

Pain in the abdomen is a very important symptom of allergy and adds confusion to the diagnosis of some important conditions. The pain is usually due to spasm of the unstriped muscles, and may be intense. It can simulate gall stone colic, the passage of a renal calculus, or appendicitis and may cause embarrassment to the surgeon if not excluded in doubtful cases. To do this it is most important to look for a history of allergy. I had treated a young man for eczema and urticaria due to allergies from pork, tomatoes, and strawberries. Some months after this he sent for me, and I found him suffering great pain in the region of the appendix and vomiting. No tenderness, rigidity, or fever. On inquiry, it developed he had eaten heartily of pork a few hours before, and a dose of atropin quickly showed the pain to be an allergic reaction. Repeated allergic edema of either the appendix or gall bladder may result in a serious pathology in these organs. This fact makes it the more important to exclude the offending allergen.

Paralysis of the unstriped muscles as a result of allergy is not frequent but may be suspected in some obscure cases of apparent intestinal obstruction or ileus.

Many theories have been advanced to explain the development of allergy. We know that it is inherited in many cases and it is recognized that inquiry for a history of allergy, not only in the individual but in his family, before administering serum is highly important. In searching for the offending antigen in each case we should get the family history in this regard, especially the food habits of the mother during her pregnancy in determining the cause of allergy in children.

Inherited susceptibility to proteins is the most difficult to overcome and produces the most troublesome and dangerous reactions. Acquired susceptibility can be produced to horse serum by a single dose of the serum and may last for months or years, and should always be looked for in second and succeeding administrations. Susceptibility is not prone to develop during a series of doses of serum in the treatment of a disease like tetanus, unless the doses have been unusually large or given over an unusually long period. The small amount of serum in the toxin-antitoxin mixtures is not likely to develop a hypersensitiveness to that serum. If the intradermal test shows susceptibility in an



individual who has previously taken serum, carefully graduated doses of the serum, beginning with a very small and diluted dose will generally overcome the susceptibility in an hour or two.

Acquired food allergies are generally produced by overeating of certain foods or the continued eating of a food in undue amount for a considerable time. An example, certain persons can eat pork or tomatoes for one meal without any symptoms, but if repeated for several meals, allergic symptoms will develop. What immunity the person has to such foods is evidently not sufficient to take care of repeated exposure to the antigen. After an allergy has been acquired, it is easier to develop in succeeding exposures and may in time become so strong that prolonged elimination of the food may be required. The diminution or temporary absence of the enzyme necessary to take care of a certain protein may be the exciting cause of an allergy in the first manifestation, but each future exposure, if it occurs too soon after the first, seems to overwhelm this enzyme more easily. The inherited lack or weakness of an enzyme is naturally more difficult to remedy than its temporary absence.

The development of asthma due to pollen allergy may be caused by the presence of an excessive amount of that pollen at the time, but the more probable cause of its development is the occurrence of a hyperemia of the nasal mucosa, or the development of some irritation in the respiratory tract. A perfectly healthy respiratory tract is the surest preventative to pollen allergy except in cases of the inherited susceptibility. Even this susceptibility might be avoided if better care was taken of the respiratory tract.

It is evident that the individual susceptibility to proteins is variable in certain persons, and a temporary upset from any cause may be the means of starting this very troublesome syndrome.

It should not be difficult for one familiar with the symptoms of protein hypersensitivity to make the diagnosis of allergy in such cases, but to find the specific cause of the allergy in question is often a very difficult matter. The commonest causes of food allergy are naturally found among the most common of our foods, such as milk, wheat, eggs, meats, and several of the fruits and vegetables that are found on almost every table. Anaphylactic shock and serum sickness leave no room for doubt when serum has been administered even in small doses. But when allergic shock occurs apart from the administration of serum or one of the vaccines used for allergy or an overdose of insulin, it should suggest excessive over-eating of a

specific allergen by a susceptible person or the sting or bite of an insect.

Allergies from pollens, such as hay fever or asthma, suggest the pollen that comes from plants that are pollinating at the time of occurrence of the symptoms. The skin test will generally determine the specific pollen.

In not a few cases, it will take much time and a great deal of patience on the part of the physician and sufferer to find the cause or causes, for very often there is more than one allergen causing the reactions.

The two chief means of finding the offending substance are the skin tests and elimination. There are several hundred skin tests made by the biological houses and kept in stock, and tests and also vaccines can be prepared in any good laboratory. The trouble is that a negative skin test does not always remove the possibility of the particular substance tested being the offender, for some skins do not react to either the scratch method of testing or the intradermal method. In testing pollens, it is possible to apply the tests to the conjunctive, but in food allergy, the most certain test is that of elimination. There are elimination diets tabulated in works on allergy, and with a little care and thought, almost any one can prepare elimination diet lists for each case. In fact, this is not much more troublesome than a long series of skin tests and is far more certain of its finding. As mentioned before, the findings of the specific allergens in house dust requires careful laboratory examinations. The tests for animal dander, hair, feathers, and such like can be taken from the stocks of biological manufacturers.

When the specific allergen is discovered, immunity may be restored by the use of a graduated vaccine of this substance or in food allergies, by beginning with minute quantities of the food administered by the mouth, and gradually increasing the amount taken from day to day. If the allergy to food is caused by only one or a few foods that are not essential to health, it is wise to eliminate such foods altogether. In children it is often possible after several months to return to these foods in moderation. Each recurring reaction reduces the tolerance of the individual and requires the elimination to be resumed for a time at least.

The pollen vaccines are the most specific we have, and this is especially true of the vaccines for our fall hay fever. These are so well known and commonly used that it is not necessary to discuss them.

There are two remedies that are used for the relief of symptoms of allergy that are so specific that they are all but diagnostic. They

are epinephrin and atropin. Severe pain in the abdomen, if due to allergy, will be more quickly relieved by epinephrin, and sometimes by atropin, than by morphin. It is well recognized that epinephrin given intramuscularly or intravenously is the quickest and surest remedy for anaphylactic shock. Atropin stands next in efficiency in this dreaded condition, and some cases require their joint administration. Asthma is often quickly relieved by epinephrin for a time at least, and even the annoying urticaria can be temporarily controlled by the same remedy. Every physician should carry one or more ampules of epinephrin with him at all times. Angioneurotic edema in or near the larynx should be treated with epinephrin and we should be prepared for immediate tracheotomy.

The almost specific action of epinephrin in many of the allergies suggests the possibility of disfunction of the suprarenal gland as a factor in the causation of these symptoms.

A careful study of the various allergies will repay any one engaged in the practice of medicine, no matter what the special line of practice may be. Of course, the internist will be called on to treat most of the manifestations, and he should always be consulted when any one of the symptoms of these reactions occur. The discovery of an allergy will remove some of the confusion too often met with and merit the gratitude of many sufferers.

We should not be too quick to conclude that shock, pain, asthma, or cutaneous eruptions are allergic in any given case, but we should always be careful to consider this important syndrome in arriving at a diagnosis in cases that are open to doubt.

#### DISCUSSION

**Frank M. Stites, Louisville:** One fact that has recently been brought to my attention which I think is worth mentioning is the method of testing for allergic reaction. I have had, for a great many years, the privilege of testing patients with the cutaneous test, and I recently had a case that did not respond or show any reaction to any of the food tests. This patient was from out of town, and at a later date went to Pennsylvania. Dr. Shamberg, in reviewing the case, had a similar experience. He wrote me, however, at a later date that on doing the intracutaneous test for food sensitization he was able to secure three very positive reactions. Since then I have recently been trying similar experiences; cases that show very mild or doubtful reactions to the cutaneous test, when the solution is injected under the skin give a very definite reaction. I think that is a point worth bearing in mind.

**Nevil Garrett, Norwood, O.:** I should like

to ask Dr. Stites just what procedure we should adopt in using antitoxins where we know the patient is asthmatic, or perhaps sensitive to horse serum or horse dander. I think in the past I have used antitoxin with too great freedom. When you go along for a long time and have no trouble, you begin to think there is no danger in it. I have had one or two very unpleasant experiences. I once gave a child, 5000 units of diphtheria antitoxin, and I hadn't much more withdrawn my needle until the child had a convulsion. Fortunately it passed off in a minute or so. It was not a pleasant experience.

I have occasion to use quite a bit of tetanus antitoxin in my work at present. Recently a man had an injury to his hand, and I gave him 1500 units of tetanus antitoxin. Something less than three months from that time he stuck a nail in his foot. I felt antitoxin was again indicated. I used the precaution of giving him three or four drops under the skin, which produced no trouble. He came back in about three-quarters of an hour and I gave him a little more, about a fourth of a c. c. He came back again in a half hour or so and said it made him sick. I didn't consider that the indication was so urgent in this case as to give the remainder of the antitoxin, and I desisted. Suppose you have an imperative indication for antitoxin. The advice is to give it gradually until you get him sensitized. Are you going to keep on giving it if it keeps on making him sick?

If a child has diphtheria and the indication for antitoxin is imperative, what treatment shall we adopt?

**Austin Bell, Hopkinsville:** Those of us who know Dr. Stites and who have had the pleasure of hearing him in papers before, listened to this with a great deal of pleasure, realizing that he would bring us a splendid paper on this interesting and most important topic.

There are few of us who have not in our own experiences had some evidence of allergic conditions. Eating tomatoes will often cause an irritation in the mouth; strawberries or pork will cause the same condition. Ham, if eaten, excessively, will cause an irritation, and if continued will cause an urticaria.

I recall a lawyer of my town who on two occasions after eating mutton had allergic symptoms of a very marked and severe nature, nausea, vomiting, diarrhea, blood and mucus in the stools, with a high temperature. A repetition of the same type of food caused exactly the same symptoms.

I feel quite sure that after the second trouble he will never repeat his indiscretion in diet again.

I have under my care at the present time a baby whose mother was unable to completely nourish that child on breast milk. I tried



adding orange juice in addition to the complementary feeding, and found in a short while an eruption on each cheek of the child. I couldn't cure this eruption by any local application that I made. The mother told me the father was never able to eat oranges without an eczema, and a withdrawal of the orange juice from the dietary resulted in a complete cure of the eczema without any local applications.

After a little while, with small doses I commenced the orange juice again, which resulted in the same outbreak of eczema. I withdrew it again with an entire relief of the eczematous manifestation. After a short period of time I tried tomato juice, feeling that the vitamin C was essential for this child's diet. This caused exactly the same condition, and at the present time I am starting with orange juice again in very small doses, hoping to desensitize the child and gradually add sufficient of the fruit juices to give the desired results.

I think very few of us should give sera of any kind without a keen sense of realization to what we are subjecting our patient, and the danger. We never know whether there will be a very serious anaphylactic reaction or shock, or other condition resulting from the use of a serum. I think we should always have epinephrine at hand and administer it on the slightest provocation.

All of us have had more or less irritation from the use of the various antitoxins. Recently in using the tetanus antitoxin as a prophylactic measure, I have had allergic reaction manifest itself mostly in the glands of the body, usually nearest the site of injection. I think I have had about three cases comparatively recently in which there was almost no urticaria, considerable temperature, a good deal of aching, and the glands became very decidedly enlarged.

If I remember correctly, Dr. Stites did not emphasize this allergic outbreak.

In the use of toxin antitoxin in diphtheria, it is usually considered entirely free from danger. Recently I had a case in an asthmatic child whom I considered it necessary to protect against diphtheria. I used that prepared with goat serum, hoping that I would not have much of a reaction. The child was made violently sick, had an excessive temperature, a violently inflamed arm, and the illness continued three or four or five days when the symptoms subsided. At the end of a week's time I decided I would give the second dose in spite of this decided reaction, and the reaction in this instance was even greater than it was in the first. I viewed the approach of the time for the giving of the third dose with a good deal of trepidation, but I am very glad to say that I had no reaction at all. I have had a similar experience in the use of typhoid vaccine. A

patient in whom I used it after two previous attempts by other physicians in which they did not continue the use of it, gave very decided reaction to the first dose; there was very decided reaction to the second dose, and there was no reaction at all to the third dose. So I think often we can persist in the use of these various vaccines without harmful effect to the last dose.

I wish Dr. Dick could tell us why, if my experience is in accord with that of the profession generally, we have a greater reaction in the use of scarlet fever vaccine as a prophylactic measure than as a curative measure. I have had splendid success in its use as a curative measure, but in its use as a prophylactic measure I have often made my patients sicker than the others were from scarlet fever.

I certainly have enjoyed Dr. Stites' paper very much, and I am glad to have had the privilege of adding a word to it.

**Philip Barbour, Louisville:** Dr. Stites has given us an exceedingly interesting and valuable paper. I am more particularly interested in allergic reactions in eczema. Eczema is one of the most annoying, intractable and distressing diseases that I have to treat, it is so disappointing in the returns. In those children fed on breast milk it is very often due to intolerance of the mother to certain foods. The thing to do is to find out from the mother if there is any food to which she is intolerant. Many times by testing the mother you can find the substance that is getting through her milk into the child and giving the child trouble. Sometimes, however, the mother does not react to the same thing to which the child reacts.

It is a question how the child has become intolerant to certain things which the child perhaps has never eaten. I remember particularly a child of six months of age. The mother telephoned to me one day and said, "I would like to give the child a little taste of egg."

I said, "Go ahead."

He took a taste of egg and almost immediately his lips and face swelled up so that his eyes were shut. Fortunately he vomited the egg and slowly the edema went out of the face. He had never tasted egg before and the mother had no intolerance to egg herself. It is difficult to explain how the sensitization occurred in this case.

Sensitization seems to be an almost permanent acquisition. If you are sensitive to ragweed pollen you are going to have hay fever many, many years. If you are sensitive to any other type of food or drug or excrementitious substance or whatever it may be, you are going to be sensitive for a long, long time. Desensitization can be done by giving a drop or a tenth of a drop or a quarter of a drop of the fluid hypodermically, repeated every 10

minutes but it is a desensitization that is temporary and that will not hold for the next time that we have to give serum or some other thing to which the child is allergic.

That is one explanation of why our treatment of hay fever is so disappointing. One summer they do pretty well and the next summer they come back just as bad. If you would desensitize a patient permanently to hay fever pollen you have to do it every year for a number of years to get a complete result.

**A. McKinney, Owensboro:** There are just one or two points that I wanted to speak about in regard to the allergic reaction to the vaccines. Truly the doctor's experiences are wonderful. I heard a physician say once that he practiced medicine thirty years and never saw a case of paraphimosis and he saw two in one day after that. I have been giving the vaccines for many, many years; I have been giving them in large quantities, and I have never had a case of anaphylaxis.

During the epidemic of influenza in 1918 I gave over 5000 doses of Rosenow's vaccine. You know what the formula is. I never had any allergic reactions. I went over all the schools of Owensboro twice and never had a single reaction of anaphylaxis. I have given the diphtheritic antitoxin many times; I have given it in 10,000 unit doses, and I have never had any anaphylaxis.

I am not denying that there is anaphylaxis, because it is too conclusive that we do have it, but it is wonderful the rareness of it compared with the number of doses that are given. I have gotten to the point that I never think about it when I am giving the vaccines. However, I may be like the doctor who never saw a case of paraphimosis; I may have two in the same day.

The point I want to make is that antitoxin, especially diphtheritic antitoxin, is such a valuable agent in the treatment of diphtheria that we ought not to put a scarecrow before the physicians of this country when they have a case of diphtheria. I think it ought to be given promptly and in good size doses.

**R. E. Smith, Henderson:** I have enjoyed the paper, and I feel when we start talking about anaphylaxis we are handling dynamite. A great deal of work has been done by the French, a great deal of work has been done by the Italians, which would help us considerably if we were not quite so provincial. If you give a dose of adrenalin chloride before giving some of our protein substances, you will not get a reaction. I have had to use it in cases where children had marked tendencies to asthma, and I never want to see another case of anaphylaxis. In Boston in 1910 I saw one case, and the child died in about two minutes. I did not give it, and I can't ever wait to see another case like it. But

give your adrenalin chloride and then use Besredka's method of giving the doses, not taking the serum as it is and injecting it in one drop or two drops at a time. Dilute your serum and give it every fifteen minutes for an hour, increasing your doses.

I haven't time to start discussing how we give it. I don't know how many doses of antitoxin I gave in France at the front. I have seen at post mortems a ruptured liver, a ruptured spleen from an anaphylactic reaction; I have seen the liver go down five or six inches below the costal margin in five minutes from doses of antitoxin; I have seen that individual begin to get his breath promptly with adrenalin chloride, and sometimes we gave it right straight into the veins.

There is one thing that I think we should bear in mind. If you go to the pampas of Argentine and Brazil where they eat horse meat more than they eat cattle meat, every time a fellow takes two pounds of meat, two pounds and two-tenths, to be exact, which is a kilo, he uses four ounces of fat and boils that with the meat and the anaphylactic reaction is destroyed. A great many patients that I have had (nine of them) who were sensitive to pork I have persuaded to cook some fat that is not of hog origin with their pork. One old lady decided goose grease was the best thing to use, and I said, "Go ahead, use your goose grease." Those individuals can eat pork, and one of them eats tremendous amounts of it by using a small piece of tallow cooked with the pork, and it neutralizes the anaphylactic reaction.

Another thing that we must take into account is our glandular products. I have had seven patients who at the time of the menses immediately produced some symptoms that you could classify as an anaphylactic reaction. Those cases react wonderfully to ovarian extract.

I have one family of five children that cannot touch eggs, and the mother has persistently tried them out. I believe about nine o'clock every night she tries it, and I have to be called out to see a child that has ballooned out in various parts of the body, the ears, the eyes, and what-not. She has tried it on each and every one of her five children. About the time they are two years of age; "they must eat eggs or bust," as the father said, and I thought one of them came pretty near busting. In that instance the susceptibility to eggs was entirely changed by giving parathyroid to the whole family, the mother included.

We have a very definite relation between the thyroid, parathyroid, and our suprarenal gland. If adrenalin chloride will correct some of these cases as rapidly as it does, we know there is a loss of function of the proper conditions necessary to maintain our proper circulation, in other words a dilatation or contraction of our



superficial circulation which largely is at fault, as far as as the outside manifestations are concerned, such as itching and what-not. If that is the case, logically we must turn back to find out why it is. Isn't that individual an individual who is suffering from a glandular dysfunction? The medical profession in this country seem to persistently avoid making mention of that in the literature.

I have one child, who has urticaria and is very sensitive to certain foods, and I made it my business for two solid years to read everything I could find in three different languages. Lo and behold, I hit upon it in an article that I read in one of the Italian medical journals, it was iodine deficiency. If we remember that many of our cases that occur in women have a definite relationship to the menses, we can time and again without one particle of bother about whether it is egg, potato, beans, onions, or what-not, correct the condition by giving the proper glandular treatment to that patient.

Frank M. Stites, Hopkinsville, (in closing): Needless to say I enjoyed the discussion very much more than I did reading the paper. I believe if the Association would set aside one session and have a symposium on allergy, it would be beneficial, because the discussion has illustrated how many different points can be made.

When I prepared this paper I had an idea that the President would call me down in fifteen minutes. I got that impression some way, so I boiled my paper down to the point where it was hardly connected and was just an outline.

Two of the discussors brought out how to overcome the hypersensitiveness to horse serum, which is probably the most important thing we could discuss. As I suggested in the paper, the only successful way of overcoming this extreme hypersensitiveness is to give it well diluted in very minute doses. Take a tenth of a c. c. and dilute it a hundred or a thousand or ten thousand times, and begin to give it intradermally and then subcutaneously, and after a while in the course of a few hours you can usually get the hypersensitiveness removed and give it intravenously if you want to. I don't believe any of us should give horse serum, particularly to children or to adults who give a history of allergy or who have a history of allergy in the family, without careful intradermal tests. Then you may have to begin with extremely minute and well diluted doses.

In regard to what Dr. Barbour says about the mother being able to eat the foods without any allergy and the infant being given eczema by nursing the mother who ate that food, that may be accounted for, as I said in the original paper, by the mother having eaten that particular food to excess during her pregnancy and developing the allergy in the child before it was

born. The child would probably be allergic for the rest of its life.

I regard this as one of the most important of all our recent advances, the demonstration of allergy and its treatment. Some of you will be surprised to know of the literature on this subject that has been developed in the last ten or twelve years. Twenty-five years ago such a term as allergy was hardly not known, and hypersensitiveness to serum and other proteins received very little noticed.

## THE SURGICAL TREATMENT OF PEPTIC ULCER\*

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The successful treatment of peptic ulcer implies the joint employment of both medical and surgical measures since the lesion, in the absence of accurate knowledge of the true, underlying causative factors, must be dealt with according to the clinical and pathological features presented by the individual case.

Since Billroth, following his successful removal of a carcinoma by pylorotomy in 1881, directed his efforts to the cure of peptic ulcer by surgical measures, a voluminous literature, both medical and surgical, has been accumulated. There are important points, notably the etiological ones, upon which definite knowledge is lacking; the inflammatory, neurogenic, circulatory, bacterial and digestive or corrosive theories, each has its advocates but neither has been susceptible of scientific substantiation. As a consequence the aim of treatment has been to secure a healing of the ulcer or its eradication with a correction of the pathological defects caused by it, together with the institution of the measures as in the light of our limited knowledge, are believed to be of value in the prevention of recurrence. In the many types of operations that have been employed the underlying considerations have been to afford as far as possible a restoration of physiological function, free drainage of the stomach and a partial neutralization of stomach acids by intestinal alkalis.

The occurrence of perforations, bleeding and malignant degeneration in ulcers left behind has led to the conviction of the desirability of destroying or removing the ulcer or ulcers in addition to meeting these indications. The wide variation in the degree and character of pathology encountered in peptic

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ulcer is such that no single operation suffices to meet the indications in all cases. The attainment of success in the surgical treatment of peptic ulcer is largely dependent upon three factors; choice of operation, selection of cases for operation, and efficient pre-and post-operative medical management.

For the purposes of discussion the operative procedures with which we have had personal experience may be classified as conservative and radical. The conservative operations comprised, (a) local excision with cautery or knife followed by suture; (b) local excision plus gastro-enterostomy or pyloroplasty, (c) gastro-enterostomy or pyloroplasty alone. The radical operations consisted in the removal of the ulcer bearing area by the Billroth, Polya, or sleeve re-section methods.

In making a choice of the type of operation to be employed in a given case primary mortality and end results must be the chief considerations. It is obvious that where resistance and vitality have been lowered by long continued disease, inadequate nourishment or continued blood loss, the pre-operative administration of fluids, glucose and blood transfusions are essential in the preparation of the patient for operation, and it is equally obvious that the safety of the patient will be enhanced by the selection of the simplest operation compatible with the correction or alleviation of the pathology presented. While the x-ray is an invaluable aid in diagnosis, the extent of the local pathology will be revealed by ocular inspection only. Quiescent ulcers will permit safer attack than those showing evidence of activity.

Perforation into the free cavity or into adjacent viscera; fixation or mobility of the duodenum, pylorus and stomach; the presence of inflammatory exudate, recent or calloused; obstruction due to cicatricial contraction; exudative or massive adhesions; location and number of ulcers, in varying combinations present problems that are most satisfactorily solved by the selection of that operation best suited to the given case. The clinical observation that 90% of gastric ulcers occur at or near the pylorus and along the lesser curvature led Rodman to advocate the resection of ulcer bearing area when dealing with ulcers in this location. Time and experience have demonstrated the wisdom of this procedure particularly when the ulcers are of the calloused variety, and a determination of its employment will influence the choice of operation. Finally a consideration influencing the choice of operation is the efficacy of large resections in the reduction of gastric acidity. The observation that following resection of the ulcer bearing area of

the stomach there is a lowering of gastric acidity and further, that freedom from recurrence is the rule, to which, however, there are exceptions, has led to the assumption in some quarters that where there is no acid there will be no ulcer. On this hypothesis Finsterer and his followers have practiced the ablation of the acid bearing portion of the stomach, regardless of whether the ulcer be duodenal or gastric, with the avowed intention of producing an acidity. We have had no experience with such massive resections other than when necessitated by the location and character of the ulcer, believing the magnitude and extent of the operation to be prohibitive when compared with the favorable results obtained by simpler and less dangerous procedures. Furthermore the presence of hydrochloric acid is essential to the proper physiological action of the stomach and its continued absence, howsoever produced may be the forerunner of serious secondary disease. The selection of the type of operation to be employed is, and should be, the concern of the surgeon; the selection of the case for operation should be the joint concern of the internist and the surgeon. While unanimity of opinion is not yet to be obtained, accumulated experience and knowledge permit fairly definite indications for operative treatment. The three indications upon which all agree are: perforation, hemorrhage, and obstruction. Immediate closure of an acute perforation is the essential indication. Approximately 80% of the acute perforations of duodenal ulcers occur on the anterior wall, and 90% of the acute perforations of stomach ulcers occur on the lesser curvature of the prepyloric portion; perforation on the posterior walls is frequently sealed by adhesion of adjacent structures. Closure of the opening with superimposed layers of Lembert sutures and an omental fat graft suffices not only to control leakage but in a goodly percentage to secure healing of the ulcer as well. The employment of additional measures such as excision or cauterization of the ulcer, pyloroplasty, gastroenterostomy or resection of stomach will depend upon the extent, character, and location of the local lesion and the general condition of the patient. The prime consideration in such catastrophies is the saving of life: this is accomplished by the stoppage of the leak. It may be stated as a general rule that the greatest safety to the greatest number prohibits doing more, yet, in the presence of marked pyloric or duodenal obstruction, granting that the condition of the patient permits, a pyloroplasty or gastroenterostomy may be done with reasonable safety, giving assurance of permanent relief



and obviating a second operation. If the perforation occurs in a calloused ulcer on the lesser curvature, the infiltration surrounding the ulcer may not only prevent suture but may arouse the suspicion of malignancy as well, in which event excision or gastric resection will be indicated, as the condition of the patient and the judgment of the operator dictate. Perforations in which more or less successful efforts at closure have been made by nature will present in three clinical groups; one, rather extensive epigastric peritonitis with subhepatic or subphrenic abscess; two, localized peritonitis with recent inflammatory exudate matting together structures adjacent to the perforations; and, three, chronic perforations in which the acute inflammatory phenomena have disappeared and the perforations remain sealed by close adherence of adjacent tissues. In the first two groups, the perforation itself, surrounded and sealed by acutely inflamed tissues, will neither demand attention nor permit surgical attack, the operative treatment consisting in the first group of drainage of the purulent deposits and in the second of gastro-enterostomy. In the third group the location of ulcer and the structures to which it is adhered will determine the nature and extent of the operation.

**Hemorrhage:** Hemorrhage in both gastric and duodenal ulcers occurs in approximately 25% of all cases appearing usually in one of three forms; more or less constant seepage sufficient to produce anemia, single or recurring hemorrhages of appreciable amount as hematemesis or melena, and massive bleeding, which immediately threatens the life of the patient. Ulcers that show constant seepage and recurring hemorrhage of appreciable amount which continue in spite of appropriate medical treatment should be subjected to operation. The type of operation employed should include the destruction of the ulcer, since such ulcers when treated by conservative operations which do not include their eradication show in many instances a definite tendency to further bleeding. The treatment which we have employed for massive hemorrhage consists of rest in bed, physiologic rest of the stomach, fluids and nutrition in the form of glucose administered by rectum subcutaneously, and intravenously, the exhibition of coagulants, chiefly fibrinogen by mouth and subcutaneously, and whole blood transfusions. The fluids introduced intravenously should be in small amounts, glucose in hypertonic solution and blood transfusions of 200 to 300 cc. since the employment of larger quantities raises the blood pressure and so tends to induce further bleeding. Un-

der this regime the bleeding as a rule will cease permitting of further study of the patient and a determination for or against operation upon the associated symptoms, history and laboratory findings. Occasionally a case will be met in which such measures fail when the control of the bleeding becomes an indication for immediate operation.

**Duodenal Ulcers:** The patients with duodenal ulcers that we have selected for operation have presented one or more of four conditions; perforation, both acute and chronic, repeated or long continued hemorrhage, pyloric obstruction and long chronicity. A single massive hemorrhage is not regarded as an indication for operation; in the absence of the remaining conditions the chance for healing under medical treatment should be afforded until further bleeding or chronicity demonstrate its futility. Chronicity in spite of appropriate medical treatment is accepted as a failure of the latter and an indication for operation. For some unexplained reason duodenal ulcers do not show a tendency to malignant degeneration; hence it has been argued that chronicity alone does not justify resort to operation. The danger of perforation, the menace of hemorrhage, the possibility of obstruction and the continued discomfort produced by the chronic ulcer afford sufficient grounds to negate this assumption. The types of operation which we have employed in the treatment of duodenal ulcer are: excision alone, gastro-enterostomy alone, excision or cautery destruction of the ulcer combined with gastroenterostomy or pyloroplasty, and resection of the pylorus and duodenum. Resection of the ulcer alone was tried in a small series of cases and abandoned since three patients so treated showed recurrence within a year. Excision of the ulcer with a pyloroplasty, Finney or modified Mikulicz, has been employed for ulcers situated on the anterior wall near the pylorus, showing a minimal amount of duodenal distortion. For the satisfactory performance of this operation it is essential that the pylorus and duodenum be readily mobilized so as to afford access for the necessary manipulation. In the comparatively limited number of cases conforming to these limitations it has proved a satisfactory procedure. With increasing experience gastro-enterostomy is less frequently employed alone as the treatment of choice in duodenal ulcer. The destruction of duodenal ulcers is not an imperative indication, but when local conditions make this a feasible and reasonably safe procedure it is advisable in that it at once gets rid of the ulcer, avoiding dependence on a slow healing process and obviates the pos-

sibility of subsequent bleeding and perforation. The eradication of the ulcer is preferably accomplished with the cautery after the method of Balfour, in that the bleeding and operative trauma are decidedly less and the destruction of the ulcer just as certain. The cautery wound is closed with Lembert sutures and covered with an omental fat graft after which a posterior gastro-enterostomy is done. This conservative procedure will meet the indications in the majority of simple duodenal ulcers and the excellent results obtained place the burden of proof upon advocates of other methods to show just cause for such advocacy. In the light of such experience it will be a difficult matter to convince one of the wisdom or expediency of adopting more radical resections in the treatment of simple, uncomplicated duodenal ulcers. In the presence of obstruction due to cicatrization in the duodenum and pylorus dependent upon ulcer of the duodenum gastro-enterostomy alone affords beneficent results; the greater the obstruction, the more certain and more complete the relief. When the ulcers are multiple, and they are in from 5 to 6 per cent of cases; when situated on the posterior wall, difficult of access and so caloused as to render healing difficult; and when so situated the ulcer has perforated into the head of the pancreas with fixation of of duodenum and pylorus to the latter organ, we have come to the practice of resection of the duodenum and pylorus, employing as a rule the Polya technique. Ulcers presenting such pathology do not lend themselves to cautery destruction or excision with pyloroplasty: our experience with gastro-enterostomy alone in such cases has been disappointing in that persistence of gastric discomfort, recurrence of bleeding, pancreatitis and pancreatic malignancy have been noted. It is true that the radical operation carries a graver operative risk, but this is justified by the greater assurance of relief.

**Gastric Ulcer:** The indications for the institution of surgical measures in the treatment of gastric ulcers comprise those which apply to duodenal ulcers, namely, perforation, hemorrhage, obstruction and chronicity, to which must be added the danger of malignant degeneration. While malignancy does not become engrafted on chronic ulcer with the frequency which some authors have stated, personal observation has afforded proof of its occurrence. Patients with frank cancer at the time of examination have given ulcer histories of long duration: patients upon whom in our earlier experience we had done gastro-enterostomy alone for chronic gastric ulcer have returned years later with gastric

carcinoma. This common observation of the tendency of chronic gastric ulcer to undergo malignant transformation would seem to render imperative the destruction or removal of the ulcers in the course of operations undertaken for their relief. The operations with which we have had experience are gastro-enterostomy alone; excision of ulcer alone; cauterization or excision combined with gastro-enterostomy; sleeve resection of the pars media, and resection of the pylorus, antrum, and such part of the pars media as may be necessary to include the ulcer bearing area, Billroth and Polya types. The above mentioned observation of the occurrence of carcinoma in chronic ulcer treated by gastro-enterostomy alone has led us to abandon such conservatism and in the cases selected for this procedure to supplement it with cauterization or excision of the ulcer. Conversely, simple excision alone has been abandoned and is always supplemented with a gastro-enterostomy. In three patients presenting chronic saddle ulcer of the lesser curvature, pars-media, a sleeve resection was done. In two of these recurrence was noted and relief obtained by a subsequent gastro-enterostomy. The cases to which the combined procedure of excision or cauterization combined with gastro-enterostomy is applicable are those in which small, resectable ulcers are situated on the lesser curvature, or in the pars media, and all ulcers situated high on the lesser curvature or posterior wall. Ulcers of the lesser curvature showing marked inflammatory deposit are best treated by sleeve resection with a gastro-enterostomy, or by pyloric resection, since the defect left by excision or cauterization is such as to render accurate suturing difficult and to produce marked distortion and deformity. Ulcers with a crater of one c. m. or less in diameter are rarely malignant, and are susceptible of conservative treatment; when the craters present larger diameters the presence of malignancy is to be considered as possible and unless one feels confident of his ability to distinguish by ocular inspection between simple chronic ulcer and ulcerated carcinoma, or ulcer with beginning carcinoma, the patient should be given the benefit of the doubt and radical treatment employed. Ninety per cent of gastric ulcers occur on the lesser curvature and posterior wall at the pyloric end of the stomach, the ulcer bearing area of Rodman. The presence of inflammatory deposit in the stomach wall around the margin of the ulcer, the presence of of perigastric adhesions or of sealed perforation into the liver, pancreas or gastro-hepatic omentum, and the size of the stomach



at this point makes difficult, if not impossible, the employment of conservative excision or cauterization: the probability of failure of healing with a continuation of symptoms and the possibility of perforation, bleeding and malignant transformation if gastro-enterostomy alone is done, have led to the rather universal acceptance of pyloric resection as the operation of choice in such cases. The Billroth No. 1 gives a nearer approach to physiological restoration, but the technical difficulties encountered in its performance have led us to adopt the Polya modification almost as a rule.

A proper selection of patients for operation and the use of good judgment in the choice of operation for the given patient combined with dietary and medical supervision for at least one year following operation, offer the sufferer from peptic ulcer an excellent chance for relief. Peptic ulcer may recur after any type of operation, being located at former suture line, in new locations in the stomach and duodenum, and in the jejunum at or below the site of anastomosis with the stomach. Fortunately this occurs in but a small percentage of cases, the cause for their formation being as elusive as that for their primary appearance. Other causes for failure are to be found in faulty operative technique; in leaving behind an infected gall bladder or diseased appendix; in activation of an unremoved ulcer; in overlooking distant foci of infection; in the resumption of a faulty diet; and finally, it should be borne in mind that in the vast majority of patients presenting gastric symptoms, the latter are due to causes extrinsic to the gastric tract; granting the coincidental occurrence of peptic ulcer in such a patient, its operative correction is doomed to complete or partial failure in so far as securing complete freedom from symptoms is concerned unless the extra-gastric causes of dyspepsia can be eliminated.

#### DISCUSSION

**John R. Wathen:** Dr. Abell's paper is so complete and so fair from a surgical standpoint that there is little left for us to discuss. My remarks will be confined largely to one phase of the subject, that is bleeding duodenal ulcer which is frequently encountered. I do not believe operation should be undertaken early in this class of cases, as we have today an ideal method of treatment. The patient is placed at rest in bed, and food, water and blood are supplied by venoclysis. In that way we can give glucose, water, we add blood to the container, we also add calcium which keeps the calcium content of the blood where it should be. The patient is kept quiet and may be fed in this way for three

weeks with nothing passing through the stomach. In that way we stop peristalsis, we supply the patient with food, blood and water, with the stomach absolutely at rest. For glucose to be of benefit, it should be given in large amounts according to the method of Dr. Hendon. As a matter of course we operate at once for perforated duodenal ulcer and close the perforation, but this procedure alone is insufficient, we must also perform gastroenterostomy. After proper closure the ulcer site is covered with an omental graft. If the patient's condition will permit, gastroenterostomy is performed immediately after closing the ulcer, otherwise it may be postponed for two or three weeks, keeping the patient at rest and providing nourishment as already stated. Gastroenterostomy may then be done with satisfactory results and a low mortality.

**Mischa Casper:** We are indebted to Dr. Abell for his masterly paper presented in a masterly manner. I want to emphasize what Dr. Wathen said about trying to do too much surgery in duodenal ulcer particularly after perforation. Many patients are lost this way. When we do a gastroenterostomy in addition to closing the ulcer we may lose the patient. I believe it is better to simply close the ulcer carefully completing the operation is quickly as possible. Nearly all the patients so treated get well.

The X-ray men are to be congratulated on the progress they have made in the diagnosis of ulcers. I have seen several patients who had gone through the severe Sippy treatment with starvation diet, for ulcer when they had no ulcers, the symptoms being produced by something else. It is a terrible thing to contemplate, putting a patient to bed for weeks on a starvation diet, and then later discover that instead of ulcer there was present disease of the gall bladder, appendix, or some other internal organ. The X-ray men are now making better diagnoses than heretofore. I have seen a great deal of improvement in the last few years, and think the X-ray man is the sheet anchor in making the diagnosis of ulcer. I do not like the term "peptic ulcer," I prefer to call it gastric ulcer.

There is a class of ulcer patients who require operation who otherwise might be cured or at least treated medically. I refer to patients who have to work for a living, who have families dependent on them and who are not economically able to undergo the prolonged medical cure. I might add that these patients are difficult to control, they will observe the diet for a few days and then return to their former mode of living. The majority of these patients should be hospitalized while on the ulcer diet to secure satisfactory results. The most of these patients, or at least the ones who have come under my observation, are of a type that cannot

afford to go to a hospital for prolonged medical treatment, and then have to repeat the performance six months or a year later. This class of patients, I think, should be operated on earlier than has been our custom heretofore.

The character and extent of operation has to be decided by the surgeon after he sees the conditions present. He must be prepared to change from what he intended doing if the pathology found makes this necessary. I want to emphasize what Dr. Abell said in his paper about removing a diseased appendix or gall bladder or both, otherwise the results will not be satisfactory.

**A. M. McKeithen:** Physicians and surgeons in the past held widely different views on the treatment of peptic ulcer, but today I believe we are coming to a more common ground. I think exactly as Dr. Abell has said, that the results are dependent on choice of the method of treatment. Unsatisfactory results are usually due to the injudicious selection of the method of treatment. The simplest and safest operation that can be done is certainly the procedure of choice. Patients with duodenal ulcer should be placed under thorough and prolonged medical treatment giving the ulcers an opportunity to heal. Only in those cases with complications, obstruction, perforation, hemorrhage, and those that do not respond to medical treatment, should surgery be resorted to. On the other hand, in gastric ulcers I think surgery should be resorted to earlier, because of the chance of malignant degeneration. I believe statistics show that 20 to 25 per cent of these cases will undergo malignant change. Prolonged medical treatment of gastric ulcer, for that reason, is not justifiable.

I have enjoyed the paper very much.

**Simrall Anderson:** There has been considerable improvement during recent years in the X-ray diagnosis of gastric and duodenal ulcers. The X-ray men have made the diagnosis and have accurately located the ulcer in practically all the patients I have referred to them.

Dr. Abell mentioned the appendix and gall bladder. I am surprised that he said nothing about hemorrhoids, which I am sure are just as important.

I would like to ask Dr. Abell what his experience has been in regard to the mortality of secondary operation as compared with primary operation for duodenal ulcer.

**Jos. M. Frehling:** It has been said here tonight that surgeons and medical men as well have at last reached a common ground in their opinions concerning the proper treatment of gastric and duodenal ulcers. I believe that this statement is entirely without foundation and that rather than having reached a mutual agreement and understanding the matter is more open to con-

troversy and there is less uniformity of opinion today than ever before.

Dr. Abell has sounded a conservative note in his paper tonight, but at the same time recognizes and calls our attention to certain indications for the more radical procedures in the treatment of gastric and duodenal ulcers, such as pyloroplasty, pyloric, sleeve and sub-total resections. I cannot help feeling that had Dr. Abell read a similar paper five years ago, he would have had a less liberal view regarding the indications for more or less radical procedures than he has today. It is highly probable that using his own work as an illustration, he has resorted to radical procedures in one form or another more frequently in the past five years than in any other previous corresponding period. By this I mean, whereas heretofore Dr. Abell and others were certain that conservative measures were proper, they are now becoming less certain of this and more cognizant of the indications for more radical measures.

I believe that the reason for the slow progress we have made in gastric surgery has been the lack of pathological material for study. This has been due to the fact that conservative procedures have been so generally used, little pathological material has been available. With the increase in radical procedures there has been an increase in pathological material for study. This study has revealed that whereas before it was thought that gastric and duodenal ulcers as a rule appear singly, the fact is that ulcerations are usually multiple and that the solitary ulcer, demonstrated by X-ray, or visible or palpable at operation, is usually augmented by numerous smaller macroscopic and microscopic ulcerations in the vicinity of or even considerably distant from the supposedly solitary ulcer.

I don't believe that the Hoffmeister operation is as radical or as formidable as has been said. Technically it is hardly more difficult than a sleeve resection and the results are infinitely more satisfactory.

I do not agree with Dr. Frank that it is possible to do a sub-total gastrectomy without producing an appreciable decrease in the acid content of the stomach. The acid-bearing portion of the stomach has been definitely determined and is one of the few things relative to the stomach that no longer remains a matter of conjecture. It is inconceivable that this area of the stomach can be wholly or in part removed without producing an achylia or a proportionate reduction in the acid secretion. Therefore, where this reduction has not taken place I think it reasonable to assume that the fundus was not removed as is indicated by the operation.

Where this has been done and an achylia pro-



duced no ill-effects have been noted from the absence of acid.

If a surgeon, after careful follow-up study, thinks that his results with conservative measures have been satisfactory, he would be unwise to abandon them. But at the same time I feel that a clinic whose results showed 20% recurrences after conservative operations is warranted in adopting the more radical procedure and justified in continuing it when the recurrences following the change have been negligible and the mortality rate 5 to 6%.

In considering the mortality rate in the conservative operation as contrasted with that in the radical one, it must be borne in mind that where radical surgery is resorted to as a secondary procedure the mortality rate increases from 5 to 6% to from 25 to 40%.

These figures cannot be ignored in considering the relative dangers in the two types of procedures since it is logical to conclude that many who die following secondary operations would have been cured had the more radical been the primary operation.

I do not believe that radical surgery as a routine is necessary or wise, but I do believe that surgeons are more frequently than before recognizing the indications, and adopting the radical procedures for the cure of ulcer, and I venture to say that the time is rapidly approaching when resection will be the procedure of choice rather than the operation of necessity.

**Irvin Abell, (Closing):** I thank the gentlemen for their discussion. Dr. Wathen emphasized the fact that bleeding ulcers should not as a rule be operated upon early. In our experience we have largely followed the procedures he has outlined. However, we do not introduce intravenously the large quantities of fluid he mentioned fearing that such would increase blood pressure and induce further hemorrhage. Hemorrhage itself as an indication for immediate operation must be rare. So far as I can recall we have had but two patients that did not respond to the treatment outlined in the paper. In these, regardless of repeated transfusions and conservative management, the bleeding continued in such volume as to threaten the life of the patients and was controlled only by resection of the ulcers. The closure of the leak in acute perforations constitutes the essential indication and I do not wish to be understood as advocating the employment of further operative measures in the routine treatment of such catastrophes. However, within the limits mentioned in the paper, when patients come to operation within a short time after perforation occurs, who are not in profound shock, and who either already have marked obstruction or in whom closure of the leak will produce marked obstruction, or where inflammatory infiltration makes it dif-

ficult or impossible to close the leak satisfactorily, such operation as will fit the individual case can and should be employed. Within these limitations we have employed both closure of the leak combined with posterior gastro-enterostomy and resection of the pylorus, without operative mortality and with symptomatic relief to the patients. In the absence of obstruction closure of the perforation will, in many instances, suffice to cure the ulcer.

I have recently had the opportunity of seeing the first patient upon whom I operated for an acute perforation of a duodenal ulcer, now more than 20 years ago. Following simple closure of the perforation he has remained well and free from dyspeptic symptoms. In the intervening years we have had experiences of similar character and believe where there is no obstruction and no local condition to indicate further operation, closure of the ulcer is adequate to the fulfillment of the indications present.

Dr. Anderson asked about the mortality of secondary operations. While I can present no accurate figures our experience is in harmony with that of others in showing the mortality from secondary operations to be greater. The mechanical difficulties encountered in taking down a previous operative result are greatly increased by the presence of peri-gastric and periduodenal adhesions, both of which contribute to a higher mortality.

Dr. Frehling spoke of dealing with duodenal ulcer by extensive gastric resection and commented on my present attitude toward this phase of the subject. Five years ago at Bowling Green I read a paper on the surgical treatment of peptic ulcer. In the light of Dr. Frehling's comment it is interesting to note my change in views in accepting a larger sphere for the radical resection as presented in the paper tonight. Examination of our files shows that of 212 operations done on the stomach and duodenum in the last five years, 39 have been pyloric resections or the Polya type, a very definite increase in the percentage of resections when compared with our experience antedating this five-year period. None were done with the intention of producing an anacidity. In the instances in which the ulceration was in the duodenum, multiplicity of ulcers and calloused ulcers on the posterior wall with and without perforation into the liver and pancreas have been the indications, which, with increased experience, we have accepted for its employment. This change in attitude toward the radical operation came as a result of the observation that in our experience the treatment of this particular group of duodenal ulcers by a conservative gastro-enterostomy had been disappointing in that continued dyspepsia, recurrent bleeding, chronic pancreatitis and pancreatic malignancy had all

been noted following its employment. In the simple, uncomplicated duodenal ulcer, pyloroplasty or cautery destruction combined with gastro-enterostomy can be carried out with an operative risk of 1 to 2 per cent and with a resultant relief from symptoms in approximately 85 per cent. The radical resection carries a higher mortality and does not give absolute protection against recurrence of ulcer formation. In the light of such results and in view of our incomplete knowledge of the causation of peptic ulcer, the simpler and the safer operations, in our judgment, are to be given preference.

#### THE DIAGNOSIS AND TREATMENT OF DISEASES AND ACCIDENTS OF THE UPPER AIR PASSAGES BY THE BRONCHOSCOPE\*

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Louisville.

This paper is not presented with the intention of introducing any new phases of the subject, but rather to call attention of the general profession to some aspects of this work besides the removal of foreign bodies.

Most men are aware that foreign bodies within the air passages should be removed as quickly as possible and that this method is practically the only method by which this can be accomplished. Those of us who have done this work for some years have realized that besides the removal of foreign bodies this method could be employed in other conditions.

As a diagnostic measure and as an aid in treatment: The bulk of the work in diagnosis and treatment by this method has been in the hands of a comparatively few men and thanks to their efforts certain definite lines of procedure have been developed which are safe, which disturb the patient very little and yield valuable information obtainable in no other way.

Before taking up these other things in detail it may not be amiss to say a few words about the foreign body cases. First, the safety of the case is directly proportionate to the quickness with which the case comes under observation of the bronchoscopist. The sooner the object is removed the less chance there is for changes in the lung to develop. These cases are strictly emergencies, in the case of vegetable foreign bodies such as peanuts, beans, corn, nut shells, or where by reason of the reaction of the tissues or the size of the object respiration is seriously interfered with; to relieve this dyspnea and

the consequent strain upon the heart should be our first care.

Against undue delay it should be remembered that the general tendency of the respiratory cycle is to force the object deeper and deeper into the tree and it requires but a moment's reflection to see that the deeper the body is the harder it will be to remove. Another result of delay is oedema proximal to the object and if the object is sharp and movable granulations, which bleed easily, will form and obscure the field. Distal to the foreign body there is fluid which drowns the lung or results in abscess formation, or there may be an actual area of pneumonia around the body.

Certain other of these cases are not necessarily emergencies. It may be desirable while getting the X-ray, or while the internist or bronchoscopist is studying the physical signs to administer some general treatment. A brisk purge, followed by the administration of atropin in full doses for from twelve to twenty-four hours may put the patient in a much better physical condition for the examination. It is well to remember also that the mechanical problem involved may require considerable study for its successful solution, and further that one or more bronchoscopies may have to be made before the case is solved and that repeated short sessions are much safer and productive of better results than one session unduly prolonged. This work is exhaustive, both to the bronchoscopist and the patient; it requires the closest attention and concentration on the part of the operator and when tired he tends to lose his bearings and may continue to work on the case without accomplishing anything towards its solution. On the other hand, while he may fail to solve the case in a first short session, the interval between the first and second session gives him time for reflection and he may reason out a solution of the case so that by the time the second bronchoscopy is done the work is much easier. Finally, it should be remembered that long continued residence of the foreign body in the air passage produces a condition indistinguishable from tuberculosis, except that tubercle bacilli are constantly absent from the sputum. In such a case it is well to remember the possibility of a foreign body and the possibility of bronchoscopic removal, because these cases have been successfully treated even after the body has been in the lung for a number of years.

In considering bronchoscopy as a diagnostic and curative agent, it is proper to inquire first, what are the limitations or contraindications to its use. I can not do better than

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to quote from Dr. Jackson's latest book: "As a diagnostic method in pulmonary disease bronchoscopy is contraindicated in the following five classes of cases: (1) Any patient, until after a careful history has been elicited and a complete physical examination, a Roentgenray examination, and proper laboratory studies have been made. (2) In the presence of aortic aneurysm. (3) If there has been a recent hemorrhage. This latter, however, must be considered individually, since in some patients hemorrhage was stopped by the direct treatment through the bronchoscope. (4) In the presence of active tuberculosis. Here again the study of the particular case may develop special indications for the performance of bronchoscopy. Diagnostic bronchoscopy may be advisable to exclude neoplasm or other lesions. (5) In moribund patients. Bronchoscopists have been asked to help hopelessly ill patients.

As a therapeutic procedure, in other than foreign body cases, the contraindications to bronchoscopy are better understood if one recalls that the ideal indication is to facilitate drainage of localized lung suppuration when such a lesion is near to and communicating with the tracheobronchial tree. Localized lung abscess and localized bronchiectasis (unassociated with active tuberculosis) come within this category. Recent cases do better than long standing cases for obvious reasons; though this constitutes no contraindication. The contraindications to bronchoscopy in lung suppuration may be summarized as follows:

1. Purulent pneumonia or that suppurative lung lesion like purulent pneumonia which precedes the formation of an abscess (we are not speaking of foreign body cases)

2. Very extensive multiple abscess formation.

3. Extensive bronchiectasis, that is, involving the whole lung or greater part of both lungs.

4. In localized abscess near the periphery of the lung, which is unlikely to be drained satisfactorily through the tracheobronchial tubular system, and which can readily be approached by an external surgical operation.

5. Bronchoscopy may be considered as contraindicated in the localized bronchiectasis associated with the marked distortion of structures and extensive fibrosis; if it be done with the hope of giving relief to the annoying, offensive and fetid expectoration and of improving the general condition by lessening the toxemia (which results when the bronchiectatic area is kept clean), then there is no contraindication in bronchiectasis, even of long standing. Such cases fre-

quently approach a clinical recovery under bronchoscopic treatment.

6. Bronchoscopy is contraindicated in the presence of marked cardiac weakness. This condition, involving especially the right heart, is not uncommon in long standing cases of pulmonary fibrosis and bronchiectasis.

7. Bronchoscopy is contraindicated in case of a serious complication, obvious or suspected, in a patient whose pulmonary lesion would otherwise indicate its use."

With these contraindications in mind let us consider, first, hemorrhage. Here is a patient who comes to us with the statement they had spit up some blood. After a careful history regarding the frequency, the amount, the possible source, as derived from the statement of the patient and making an examination of the upper air passage and excluding the nose, pharynx gums, a large proportion of the remaining will be found to be due to tuberculosis. There are, however, certain cases not falling within this category, and, if active tuberculosis can be excluded, it is perfectly proper to do a bronchoscopy for the purpose of determining if possible the source of the hemorrhage. This may be found in an unsuspected foreign body with granulations surrounding, in tumors, or an erosion of the mucous membrane exposing a vessel with subsequent bleeding.

Suppuration within the lung. Within the past several years the attention of the profession has been repeatedly called to the incidence of pulmonary abscess, especially following tonsillectomy. A great deal of the discussion has centered around the etiology of the condition, whether it be due to aspiration or whether it is a thrombophlebitic process. There also have been a number of papers on other types of pulmonary suppuration, notably the association of bronchiectasis and nasal sinus disease. I want to call the attention of the profession in this part of the country especially to the fact that bronchoscopy effects much benefit in a large percentage of these cases. It should be remembered, however, that the best results are obtained in those cases which are seen early. In some instances from two to six bronchoscopies, at weekly intervals, will result in a complete cure of the condition. In other cases bronchoscopy will relieve temporarily blocked drainage in the abscess cavity and will reduce the temperature in the toxic absorption incident to the blocking without being able to entirely cure the condition. It relieves the patient of a large amount of foul smelling purulent material in most cases,

when done gently, results in very little reaction.

It may be worth while to detail the method pursued in the combined medical and bronchoscopic treatment of these conditions. First, rest in bed with postural drainage, several times a day the patient hanging the head over the bed or assuming the knee, chest position, and by repeated coughing emptying the secretion into the bronchial tubes and so out through the mouth as effectively as possible; the maximum of fresh air and sun light, and good nutritious food are in order.

Bronchoscopy is done without anesthesia, either local or general, except in adults when a little cocaine may be applied to the cords. The bronchoscope is inserted down to the affected area. If the bronchus is narrow, or blocked, the place is wiped dry and adrenalin applied. A suction tube is placed into the cavity and this is thoroughly cleaned. If there is more than one area of suppuration the second is likewise treated, after which from five to ten c.c. of an antiseptic oil is injected into the cavity and the patient returned to bed. This should not take more than ten minutes at the outside and should be repeated every five to seven days. As not all of these cases are curable by bronchoscopic drainage, it is well to emphasize the need of co-operation between the internist, the thoracic surgeon, the roentgenologist, and the bronchoscopist. Dr. Jackson states that the internist should be the man to state what particular type of treatment is best suited to the case as he thinks that he probably has a broader range of vision than those whose work is highly specialized. Certainly, it is just as bad judgment to persist in bronchoscopy after all the benefit to be derived from that method has been obtained as it is to persist in medical treatment and postural drainage alone, denying the benefits of the bronchoscope in the early stages when the best results are secured.

I have one case in particular that showed temporary benefit by bronchoscopic treatment but after the case reached a level without further benefit he was turned over to Dr. Wallace Frank, who did a thoracotomy with a practical cure of the condition. In bronchiectasis, after X-ray studies and mapping out of the lung with lipiodol solution, applied preferable through the bronchoscope, and after the cure of any disease in the nasal sinuses, if large quantities of purulent material continue to be expelled, much benefit can be derived from bronchoscopic treatment both in the clearing of the feter and the amount of the discharge, though if marked

changes and dilatations have already taken place it is too much to expect a cure. When employing suction drainage of bronchiectatic cavities, it is well to remember that pus obtained from the cavity through a special container, submitted to culture and made into an autogenous vaccine can be used with marked benefit.

**Asthma.**—It is not to be wondered at that a disease as old, distressing and with such a varied etiology should have fallen under the observation of the bronchoscopist. Without attempting a close definition of what is included in the term Asthma, let us remember Jackson's dictum that "all is not asthma that wheezes." Bronchoscopic examination in these cases is indicated because it may not be a case of true asthma. In children, foreign bodies always are to be thought of. One of the diagnostic signs of foreign body in the lung is the asthmatoïd wheeze heard at the open mouth of the patient but not at the chest wall, to which Dr. Jackson called attention some years ago. In old patients, tumor, or compression stenosis of the bronchus should be considered.

Several articles have appeared in the last few years from widely scattered sources on the bronchoscopic treatment of asthma with the suction and the application of various medicaments to the bronchial mucous membrane. In some of these cases gratifying success with the treatment has been obtained, in others it has not been effective.

The bronchoscopic examination is indicated rather for the purpose of diagnosis and should there be benefit derived from the examination, subsequent treatments could be given if thought desirable.

Let me say a word in regard to diphtheria. When the diphtheritic membrane invades the trachea with impending suffocation of the patient, prompt bronchoscopic removal several times repeated has resulted in the saving of life. This has been done by Lynah of New York, and Purcell of Paducah.

It is impossible in a paper of this kind to take up all of the conditions that should have the benefit of this diagnostic measure.

**New growths.**—While tumors of the lung are not common, there has been far more of these growths reported in recent years since the advent of bronchoscopic examination than ever before and the case reports are constantly increasing due to the information obtained by this method.

It is well to remember that in massive collapse of the lung, acute atelectasis, that this may be due to a gradual accumulation of tenacious, sticky secretion, which gradually occludes the bronchus. The patient through



weakness, or other reason, is unable to expel this secretion and they first develop emphysema followed later by an atelectasis. In such cases bronchoscopy is indicated.

In a masterful paper read before the Section on the Practice of Medicine of the A.M. A. Dr. Jackson takes up the mechanics of obstruction in these cases, and I am quoting freely from his article. "Obstruction of a bronchus is one of the fundamental factors in the etiology of pulmonary disease. It is the basis of a great many of our physical signs. There are three types of bronchial obstruction represented in mechanics by, first, a stop valve, second, a check valve, and third, a bypass valve.

"Stop valve obstruction.—In this type of obstruction the bronchus is corked, and no air can get either in or out. The residual air confined below is absorbed and in a few hours atelectasis becomes demonstrable by the impairment of the percussion note concurrent with the absence or distance of the breath sounds. The degree of the atelectasis will be in proportion to the duration of the complete stage of the obstruction; the rapidity of its onset will depend on whether or not it was preceded by a pumping out of the air by check valve obstruction to inflow. Atelectasis is likely to be mistaken for pneumonia, drowned lung or empyema because of the misinterpretation of the percussion note and the inattention to the breath sounds.

By-pass valve obstruction.—In this type of obstruction, the lumen is simply narrowed; air can pass both in and out but in diminished amount. If the degree of obstruction is relatively slight there may be a little change in the physical signs at the chest wall; but we have observed at the bronchoscopic clinic that the obstruction does not need to diminish the lumen very much until one important sign can be found if listened for with patience. This sign is the asthmatoïd wheeze heard at the open mouth of the patient. The importance of this sign is not generally realized. If the examiner's ear is repeatedly kept for a few minutes close to the open mouth of the patient during deep breathing, a wheezing sound will be heard in nearly all cases of bronchial obstruction of types 2 and 3. This sign, the asthmatoïd wheeze, unlike the true asthmatic wheeze, is rarely audible at the chest wall.

Check valve obstruction.—For many years it has been known that a tumor could compress or involve a bronchus in such a way as to occlude it partially or completely; but it is only since the advent of bronchoscopic observations that it has been demonstrated that a tumor may cause check valve obstruction by

means of which a flow of air in only one direction may cause either an obstructive emphysema or atelectasis, according to the direction in which the check valve operates; and, that, furthermore, the emphysema and the atelectasis may follow each other in quick succession according to the action of the valve.

Obstructive atelectasis and obstructive emphysema.—It is, of course, generally accepted that no one sign or group of signs can be regarded as diagnostic of any particular disease but rather of conditions that may be due to any one or more of a number of different maladies. There are, however, two groupings of signs that are so often indicative of foreign body that this diagnostic possibility requires primary consideration in all such cases. These groups are: First, Concurrence of absent or distant breath sounds with unimpaired or hyperresonant percussion note, denoting obstructive emphysema. There is air in the lung but it can not be heard to pass in or out.

2. Distant or absent breath sounds with dull or impaired percussion note. There is little air in the lung and none can be heard passing in or out. Obstructive atelectasis is to be suspected.

To both of these groups limitations of expansion is usually added, but it is omitted here in both groups in order to emphasize and contrast the fundamentals.

The concurrence of distant or absent breath sounds with a hyperresonant or unimpaired percussion note justifies a tentative diagnosis of check valve obstruction of the tributary bronchus, and in children a foreign body is the first diagnostic possibility to be considered. In adults, check valve obstruction may be due to a foreign body, but more often it is due to abnormal secretions or to tissue changes, inflammatory or neoplastic.

The concurrence of distant or absent breath sounds with an impaired percussion note may be associated with a variety of disease conditions, but the records of the Bronchoscopic Clinic show that the most often overlooked conditions are (a) stop valve or reverse check valve obstructions producing atelectasis, and (b) drowned lung. These records indicate that, in all cases of atelectasis in children, a foreign body should be thought of as the first diagnostic possibility to be excluded. In adults, neoplastic diseases have been the most frequent. In some cases there has been a sequence of these conditions; namely (a) check valve, (b) reverse check valve, (c) stop valve and (d) drowned lung. As the latter condition is soon followed by abscess, it is obviously important to determine the conditions in the stages of the

valvelike obstruction when the condition is so often easily curable. This determination can be made by the simple expedient of inspecting the obstructed bronchus with the bronchoscope, and this is usually the only way in which such a determination can be made.

**Return of function after Atelectasis.**—One of the clinically important points observed in cases of obstructive atelectasis is that the removal of the obstruction, however complete it may be, does not immediately restore function to the atelectatic area, notwithstanding the fact that the previously absent auscultatory signs immediately return.

**Conditions producing valvular obstruction.**—Bronchoscopic observations have revealed the fact that check valve obstruction may be produced by various mechanisms, chief of which are: (1) foreign bodies; (2) benign growths; (3) malignant growths; (4) adenopathy; (5) anomaly; (6) inflammatory mucosal swelling; (7) granulations and granulomas; (8) secretions; (9) blood clots."

In closing let me say that as in all other physical methods, this one has its limitations: It can not give us infallible information in every case; that in a large measure the information to be obtained is directly proportionate to the experience of the man who makes the examination. It certainly deserves a more extended use than it is accorded today by the general profession. It often gives valuable information from a diagnostic standpoint and in some instances information that can be obtained by no other method.

As a means of treatment, while in diseased conditions its use is more limited, it still is a valuable method in the removal of small growths, in the removal of foreign bodies, of course, in the removal of granulations and the dilatation of various types of bronchial obstruction.

#### DISCUSSION

**C. E. Purcell, Paducah:** Gentlemen and members of the State Society: I am very glad to have this opportunity to say a word on this important subject. I heartily agree with the position taken by Dr. Hall in the points that he has brought out. Of course, this paper opens up such a wide field, that necessarily we just have to touch some of the high spots of the subject.

I want to emphasize the point that Dr. Hall made, but before I mention this particular point, I want to say that it was quite a pleasure to hear Dr. Hall present this subject. He has developed more than the average man in the use of the bronchoscope, and he might have told you incidentally that he has grown up with bronchoscopy. In other words, bronchoscopy is com-

paratively a new thing. It has developed altogether since we were in school where we sat on the benches in the same class room.

The point that I want to emphasize that Dr. Hall made is that the use of the bronchoscope ought to be more general. I can see why its use has been discouraged. I can recite a case of some local societies where this question has been discussed, and they agreed, among themselves, that in the case of a foreign body, you had just better let the patient die.

**Why?** Because every case they had had which they sent to a general surgeon, or a man inexperienced in the use of the bronchoscope, resulted in death, and they just decided among themselves that they would rather let the patient die than let somebody bronchoscope them, and traumatize them, as they eventually all die anyway.

I want to emphasize, too, what Dr. Hall says about the difficulties of bronchoscopy and the dangers of bronchoscopy in inexperienced hands. Also I might emphasize how safe it is and how reliable it is not only as a diagnostic procedure, but for treatment of diseases in the hands of those who are accustomed to pass the bronchoscope.

I saw another case. Dr. Hall didn't mention the value of direct intubation. I intubated before I heard of it. After I had found that you could hold up the tongue, and look into the larynx, and take a pair of ordinary forceps, I intubated by direct vision before these special instruments were gotten out. And by the way, Dr. Mosher, I believe it is, has a very excellent instrument, and you can put it right into the larynx by direct vision.

There is another class of cases in which a great deal of benefit can be had from the use of the bronchoscope. There is the obstruction when the child is completely exhausted, and there may be some obstruction either from diphtheritic membranes or other causes, and the child cannot get the proper air because of the blocked up passages. It is a very simple matter to pass a bronchoscope and to aspirate the secretion several times. I have just lately passed the bronchoscope and aspirated the secretion from the bronchi of the small child and saved the patient.

Of course, there was some obstruction to the bronchi, and in one particular case that Dr. Hall mentioned—I passed the bronchoscope repeatedly and removed many casts—clinically diphtheria—from the bronchi. This child recovered.

In conclusion, with Dr. Hall's plea, I would urge a more general use of endoscopy not only as the most accurate way of treating diseases of the respiratory and upper food passage, but as a matter of exact diagnosis, and therefore the most valuable advice to your patient.



Two points to illustrate: First, a man 66 years of age repeated hemorrhages from the throat—typical cancer symptoms and age. A bougie was passed into his esophagus and it was returned with blood on it—more cancer symptoms. Endoscopy showed a simple bleeding ulcer of the larynx. A few simple treatments cured the patient and he was assured positively that he had no cancer.

Second, a man 65 years old, had hoarseness which had persisted for over a year. He had been told he had cancer of the throat. Endoscopic examination showed a small wart between the vocal cord. This was removed by direct vision and the laboratory investigation showed it to be a papilloma. This patient could positively be assured that his trouble was ended.

**J. H. Hester, Louisville:** Mr. Chairman and Gentlemen: To begin with, of course, I don't do this kind of work, but I think it is a specialty of its own, and, of course, Dr. Hall has equipped himself for this specialty. It costs a lot of money to do that. I am quite sure he will bear me out in that statement, and when we have a man who is equipped as well as he is, I think that what we want to do is to send the patients there.

I know that he is skilled and that he is a good operator, and I think one of the things that I would like to impress on your mind most forcibly would be the fact that as soon as you make a diagnosis that you have a foreign body to deal with, you should get the patient in as early as possible. The earlier we can get them to the doctor, the better chance they have. I think that is the most important thing.

If we have a case of a sudden onset, cough, wheezing, and the temperature is normal, with no symptoms of any other condition, I think it is best to get the patient in anyway even though he is not in distress, because this condition may excite or cause pneumonia or some other trouble, whereas if you get it out early you are not likely to have any trouble.

The important thing, of course, in these cases is to prevent any complications, and the only thing, as I said before, is to try to do as I do when I get a case: I just rush the patient to the doctor as soon as possible so that he can take care of them.

**Gaylord C. Hall, (Closing):** I want to thank Dr. Purcell and Dr. Hester for their discussions. Now, the object of the paper, primarily, of course, was not to deal especially with foreign body cases, but rather to call your attention to the fact that in diseased conditions of the lung much valuable information can be obtained by bronchoscopy. I hope that before I die I will see a case of lung suppuration that is less than

six months old. We see these cases late, as a rule.

Another thing about the method of examination, I want to emphasize the fact that these cases of bronchoscopy are not difficult. All you have to do is to get the confidence of the patient and get a certain degree of relaxation and you can pass a bronchoscope without any anaesthesia. We never think of anaesthesia in this case. In most cases of obstructive diseases of the lungs, anaesthesia is not necessary, and you mustn't think of considering the general anaesthesia in any of this class of work.

I am also anxious to try the effect of the bronchoscope in cases after other surgical operations, where you have impending edema of the lung, or drowned lung. People's lungs, because of weakness or other conditions, fill up and they simply can't get rid of the secretion. I am sure that bronchoscopy, followed by suction drainage, will tide these people over this crisis, and probably turn a certain death into a possible cure.

It is in those cases that we want to urge the employment of bronchoscopy early.

In the last year I have seen three cases of tumor of the lung. All three of them were in the very last stages. One man had a tumor in the right, upper lobe, that cast a shadow with the X-ray as big as my fist. He had a complete obstruction on the right side and a partial obstruction on the left side, and he was in a condition of extreme dyspnoea.

These cases develop, often times, from the bronchial mucous membrane, and if seen early, in the very early stages where there is practically only an asthmatoïd wheeze to be heard, bronchoscopy reveals the nature of the trouble and it may be possible to remove the tumor through the bronchoscope. It is in these conditions that I want to call your attention to this method rather than in the removal of foreign bodies.

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**Chemical Adjuncts to General Anesthesia.**—Examination of some of the possible chemical adjuncts to anesthesia by Leake indicates the need of an extended critical pharmacologic and clinical evaluation of the various agents proposed for preanesthetic hypnosis in metabolism regulation, and for postanesthetic complications. Such an evaluation should be made in the light of present physiologic conceptions and the objects of anesthesia. He avers that only such chemical adjuncts to anesthesia, and only such anesthetic agents, should be used as contribute to or disturb the heart, the best physiologic condition of the patient.

## OSSIFICATION OF CHOROID: SYMPATHETIC IRRITATION\*

SAMUAL G. DABNEY, M. D.

Louisville.

Mr. X., aged 48 years, date of first observation January 28th, 1930. The patient states that when 18 years old he received a severe blow from a rock on the left eye, causing great swelling and pain. He apparently recovered from this, however, with perfect sight.

About six years later the vision in the same (left) eye became impaired. He consulted an oculist and the eye was treated, but rapidly became worse and in the course of several months became completely blind.

He saw no oculist again until last autumn (24 years later) when he consulted two, one of whom advised immediate enucleation of the blind eye, and the other advised against it.

At the time of his visit to me (January 28th, 1930) he was having no subjective symptoms, and the vision was more than 20-20 in the right eye; the eye was free from irritation. The left eye was atrophic from an old irido-cyclitis, but presented no tenderness nor pain at that time. He was advised that operation was not immediately necessary, but he should return at once if either eye gave him further trouble.

He consulted me again on October 4th, 1930, saying that he had been subject to spells of pain in both eyes, much watering of the eyes, and great sensitiveness to light.

Examination showed that the atrophic blind left eye was very red and inflamed and somewhat tender. The right eye, except for the symptoms already mentioned—watering, sensitiveness to light and pain—was normal and had perfect vision.

The diagnosis of sympathetic irritation was made and enucleation of the blind eye advised. A week later the atrophic eye was enucleated and on dissection the piece of bone I show you was found in its posterior portion—ossification of the choroid. All the symptoms were immediately relieved, and the patient is doing well.

Sympathetic irritation of an eye may be due to trivial or severe lesions in the opposite eye. It is generally considered to be a reflex affection taking place through the afferent nerve. It is possible for sympathetic ophthalmia to begin with these irritative symptoms, but it is uncommon for it to do so. The mode of transmission of sympathetic ophthalmia is not positively known; it is dis-

tinguished from sympathetic irritation by evidences of inflammation in the interior of the eye, especially by precipitates on the posterior surface of the cornea, and signs of an iritis.

Sympathetic ophthalmia is one of the most dreaded of ocular diseases, but the prognosis is somewhat better than it formerly was. The prognosis of sympathetic irritation is favorable with the removal of the cause.

Ossification of the choroid is occasionally found in eyes long blind from irido-cyclitis. It can sometimes be recognized by palpation before removal of the eye, but often is first diagnosed on section. It can cause either sympathetic irritation, as in the case reported, or sympathetic ophthalmia.

### DISCUSSION

**Adolph O. Pfingst:** This interesting specimen presented by Dr. Dabney reminds me of a specimen presented at the Jefferson County Medical Society by the late Dr. P. Richard Taylor in which the entire choroid and ciliary body were ossified in the formation of a bony shell or sphere. Cases of ossification of the choroid are not common. They are always found in shrunken eyes in which a frequent recurrent inflammation had occurred. The hard tissue in the specimens of this kind is true bone showing bone spaces or lacunae under the microscope. The condition should not be confounded with calcification, in which lime salts are deposited in the tissues as we see it in the cornea and also in the deeper structures of the eye.

The question of sympathetic ophthalmia is always an interesting one. Personally, when I see an eye that is sensitive to light and shows a slight pericorneal zone of redness with active trouble in the other or injured eye, I can not decide whether this is what is known as sympathetic irritation or the beginning of a sympathetic inflammation. Rather than await the development of the true inflammation and a possible loss of both eyes I would play safe in such cases by enucleating the offending eye.

**Samuel G. Dabney, (Closing):** According to my understanding there is a distinction between sympathetic irritation and sympathetic ophthalmia. In sympathetic irritation the prognosis is favorable if the cause is removed.

In the case reported I believe the condition was sympathetic irritation, there being no sign of inflammation of the eye. The symptoms were sensitiveness to light, lacrimation and pain. There were no signs of iritis or other inflammation. The patient was under my observation for a week before enucleation was performed.

Sympathetic inflammation does not usually begin in this way.

\*Read before the Louisville Medical Chirurgical Society.



## WOMAN'S AUXILIARY CORRECTION

Change the first part of the first sentence in the first paragraph on page 627 in the December Journal to read as follows:

"When I began this work, your Historical Committee consisted of the Historian, the President of each County Auxiliary and the Executive Board of the Jefferson County Auxiliary;—"

### FROM THE LADY IN PHILADELPHIA

Philadelphia, Jan. 29, 1931

Dear Kentucky Auxiliary Members:

Mrs. McCormack offers me a great privilege in greeting you again after my delightful experience in Louisville at the Southern Medical Association. From that meeting I brought home one specially good idea which we hope to put in practice, June 8-11 at the national convention here, sponsors for each State delegation. There are important duties in looking after a delegation which State presidents, being members of the National Board, are too busy to perform, and sponsors just fill the bill.

Headquarters for all women's activities will be in the Roof Garden of the Bellevue-Stratford Hotel, and nothing but programs will be procurable elsewhere. In the other leading hotels members of the Hospitality and Information Committee will receive the guests and answer questions. Rooms for State headquarters have been reserved free of charge at the Bellevue, where members may tidy up, rest, telephone, hold committee meetings, etc. (This last use is a life-saver for husbands longing for bed). A room will be assigned to Kentucky and all other states south of the Ohio and east of the Mississippi, and we hope that this plan of a common meeting place for small groups may promote acquaintance and friendly spirit among our widely scattered members.

The chairman of the Hotel Committee is Mrs. Frederick S. Baldi, 2117 Porter Street, Philadelphia, who will endeavor to place all members to their liking. Applications should be sent in early. The A. M. A. headquarters are at the Benjamin Franklin Hotel, and their hotel chairman is Dr. Frederick S. Baldi, 301 South 21st Street, Philadelphia.

Beside State sponsors and State headquarters, a third innovation will be an earlier start of convention activities. We shall open with a subscription buffet luncheon on Monday June 8 in honor of all our national presidents, from Mrs. Red to Mrs. McGlothlan. Of course a seated luncheon is more comfortable, but it takes longer to serve, and at table one meets only one's immediate neighbors, so we hope that a buffet luncheon at the opening of the conven-

tion will perfect us all in the gentle art of mixing.

Immediately after the luncheon we plan three round-table meetings open to everybody. Each will last 35 minutes, followed by a 10-minute intermission, and will be devoted to discussion of some subject of vital importance to County Auxiliaries, led by an expert. These meetings will be very informal, and their success will depend on the interested and constructive participation of Auxiliary members. County presidents, presidents-elect and committee chairmen should not miss them, for they may easily prove the most helpful and stimulating meetings of the convention.

The rest of the doings are much as usual, mornings devoted to business, afternoons and evenings to pleasure. The full program will appear in the convention number of the Journal of the American Medical Association, and special items in the American Medical Association Bulletin each month.

I hope you are all reading the Auxiliary Department in the Bulletin, and will continue to give material as outstanding as your last. If you find the Department helpful, do say so to your friends among the A. M. A. trustees. The Department is only an experiment, you know, and will be discontinued unless it can justify its existence.

Hoping to meet a large Kentucky delegation at the Bellevue on Monday, June 8, at 12:30 P. M., I am

Faithfully yours,  
CORINNE KEEN FREEMAN.  
(Mrs. Walter Jackson Freeman)

### OUR RADIO BIRTHDAY

Our first radio birthday was February 13th. A whole year of weekly programs over the radio is a new record for the Woman's Auxiliary to the Kentucky State Medical Association. These programs have been made possible through the generous courtesy of WLAP, Louisville's Own Station.

Members of the Jefferson County Medical Society have assured the success of the programs, for the health talk each week is given by a physician. An Auxiliary member introduces the speaker and makes the final statement known as "the sign off."

### GIFT FOR JANE TODD CRAWFORD FUND

Fifty Dollars have been received for the Jane Todd Crawford Memorial Fund, the contribution of the Woman's Auxiliary to the Southern Medical Association. This sum was generously voted at the last annual meeting held in Louisville, November 12, 1930. Our Treasurer, Mrs. W. C. Dugan, enthusiastically expresses the delight we all feel when this fund is increased.

Each donor to the Jane Todd Crawford Memorial Fund will be especially pleased with this contribution representing all the members of the Southern Medical Auxiliary.

### IN MEMORY

Of Mrs. W. F. Boggess

January 3rd, 1931

Louisville, Ky.

"Gently an angel spoke—

She smiled—and slept."

Mrs. W. F. Boggess, nee Miss Liebe Jones, was born in Marion, Virginia, October 19th, 1866, daughter of Major William A. Jones, (Confederate Army) and Mrs. Ann Scott Jones, one of eleven children, six boys and five girls. Mrs. Boggess received her early education at Stonewall Jackson College, Abington, Virginia, and when Dr. Thomas H. Davidson resigned as President of this institution in September, 1881 to establish the Louisville Female College in Louisville, Mrs. Boggess came to Louisville at the same time and entered this Institution. After graduating from Louisville Female College and Louisville Kindergarten Association, Mrs. Boggess taught kindergarten for four years in the Cabbage Patch until her marriage.

Her bright mentality, with an attractive personality, called forth the regard and admiration of a wide circle of friends and acquaintances.

In 1896 she married Dr. W. F. Boggess, one of the leading physicians of Louisville. Of this union two daughters were born—to whose rearing and education she gave meticulous and devoted care, finding also time to take an interest in various outside activities.

Mrs. Boggess was a member of the Woman's Club, Monday and Friday Morning Club, Vice-President of Whatsoever Sunday School Class of the Fourth Avenue Methodist Episcopal Church a charter member of the Woman's Auxiliary to the Jefferson County Medical Society and Historian of the Woman's Auxiliary to the Kentucky State Medical Association.

Mrs. Boggess was a member of the Second Presbyterian Church and after her marriage joined the Fourth Avenue Methodist Church.

Mrs. Boggess brought to the Woman's Auxiliary of the Kentucky State Medical Association her charming personality and to its deliberations her mature wisdom and judgment; she evinced a deep interest in its welfare and progress and contributed much of her time, talent and effort to the furtherance of its projects.

The Woman's Auxiliary of the Kentucky State Medical Association desires to write into the record an expression of deep appreciation of Mrs. Boggess' loyalty and service and sincere regret in her passing. Her death in the fullness of her development brings an irreparable loss to her family and a profound sense of sadness

to her friends and associates.

It leaves to the Auxiliary the memory of a beautiful character, well worthy of emulation.

"To live in the hearts of those

We leave behind us

Is not to die."

MRS. IRVIN ABELL.

### BOOK REVIEW

TEXT-BOOK OF GYNECOLOGY—By Arthur H. Curtis, M. D., Professor and Head of the Department of Obstetrics and Gynecology, Northwestern University Medical School; Chief of the Gynecological Service, Passavant Memorial Hospital, Chicago. 380 pages with 222 original illustrations. Philadelphia and London. W. B. Saunders Company, 1930. Cloth, \$5.00.

Dr. Curtis gives first a thorough presentation of infectious processes. Then he presents a study of tumors of the uterus and of the ovary, displacements, relaxations and disturbances of function. Following this are two large divisions devoted to gynecologic diseases and symptom-complexes. The final section discusses examination, the early diagnosis of pregnancy; the appendix and the urinary tract; spinal anesthesia; dietetics; transfusion. Most of the 222 illustrations are by Tom Jones. This is an unusually practical book—and so has met with unusual success.

PROTOZOAN PARASITISM OF THE ALIMENTARY TRACT. PATHOLOGY, DIAGNOSIS AND TREATMENT.—By Kenneth M. Lynch, M. D. Professor of Pathology, Medical College of the State of South Carolina, Charleston, South Carolina.

This book has been planned as a monograph for students and practitioners of medicine and for those variously connected with medicine in special ways which bring them as responsible parties into this very common consideration in the diagnosis, prevention and treatment of disease in man.

For protozoologists it will serve as a connecting link between their special field and medicine. Technical details which tend to fuse and so lose the interest of those to whom they are of slight concern are largely left out of consideration. Medical practitioners will find it a thought provoking and practical book.

The MacMillan Company, Publishers, New York. Price \$3.75.



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1931 MEETING LEXINGTON

## COUNTY SOCIETY REPORTS

**Jefferson:** The March program of the Jefferson County Medical Society will be as follows:

### March 2nd—Case Reports

Interesting Breast Tumor—H. H. Hagan, M.D.  
Foreign Body, Obstruction of Intestines with Peritonitis—G. G. Altman, M. D.

### Essay

More Recent Concepts of Nephritis—Frank M. Stites, M. D.

Discussion to be opened by Harry S. Frazier, M. D. and C. Dwight Townes, M. D.

### March 16th—Case Reports

A Case of Osteomyelitis Treated with Magots—Orville R. Miller, M. D.

A Case of Agranulocytic Angina with Recovery—J. M. Kinsman, M. D.

### Symposium: Toxic Goitre

1. Toxic Adenoma—A. M. McKeithen, M. D.  
2. Exophthalmic Goitre—Virgil E. Simpson, M. D.

3. Preoperative and Postoperative Treatment.—Uly H. Smith, M. D.

4. Operative Technique.—John R. Wathen, M. D.

Discussion to be opened by J. Rowan Morrison, M. D. and Wm. E. Fallis, M. D.

J. D. ALLEN, President,  
J. C. BELL, Secretary.

**McCracken:** The following officers were elected by the McCracken County Medical Society December 22, 1930 to serve during the year 1931:

Dr. Errett Pace, President

Dr. Bob Overby, Vice-President

Dr. J. T. Reddick, Secretary

Dr. P. H. Stewart, Treasurer, (re-elected).

Dr. J. N. Bailey was re-elected Delegate, the delegates now being Dr. Bailey and H. G. Reynolds; Alternate Delegates, Drs. Frank Boyd and Leon Higdon; Censor, (three years) Dr. E. B. Willingham.

J. T. REDDICK, Secretary.

**Barren:** The Barren County Medical Society held a meeting January 12, 1931 and elected the following officers:

President—Dr. Clifton Richards.

Vice-President—Dr. Paul S. York.

Sec.-Treas.—Dr. C. C. Turner.

It was agreed to let the staff meeting of the Community Hospital take the place of the regular Barren County meeting.

C. C. TURNER, Secretary.

**Clark:** The annual meeting and dinner of the Clark County Medical Society was held on December 19, 1930, at the Brown-Proctoria

Hotel, the President, Dr. W. G. Combs, presiding.

Members present: Drs. Richard Allen, I. H. Browne, O. P. Clark, Ernest Cole, W. G. Combs, A. J. Davidson, George F. Doyle, W. C. Grant, H. R. Henry, J. F. Pennington, R. H. Scobee, John A. Snowden, Sr., and John A. Snowden, Jr.

Guests: Dr. Charles A. Vance, Councilor of the Tenth District; Dr. Julian Estill and Charles C. Garr, of Lexington; Dr. Robert Edward Strode, of Louisville.

The following officers for 1931 were unanimously elected:

President—Dr. Robert H. Scobee

Vice-President—Dr. John A. Snowden, Sr.

Secretary-Treasurer—Dr. George F. Doyle.

Censor—Dr. Ernest Cole.

GEORGE F. DOYLE, Secretary.

**Union:** The Union County Medical Society met in regular session on January 27, 1931, at the Morganfield National Bank Building, Morganfield, with the following present; Dr. Graves, president, presiding; Dr. Conway, Dr. Lynn. Dr. Sloan, Dr. Allen, Dr. Carr, Dr. L. Stewart, and Dr. Donan.

Dr. Allen read a paper on the management and treatment of influenza which was enjoyed by the entire membership present, and a lively discussion followed this.

The following resolution was carried on motion and seconded by unanimous vote:

**RESOLVED** that the Union County Medical Society hereby requests the Honorable Fiscal Court of Union County, that all pauper cases, both surgical and medical, be attended by physicians and surgeons residing in Union County, and especially so upon request of the patient, instead of sending operative cases out of the County, and that the price be the same that has lately been paid to the Henderson and Evansville doctors; and that a committee consisting of the President of the Medical Society, the President of the County Board of Health, and Dr. Sloan of Sturgis, be appointed to deliver this resolution in person to the Court.

Current bills were ordered paid, after which the society adjourned to Dr. Allen's dining room for refreshments.

DAVID C. DONAN, Secretary.

#### RESOLUTION

Resolution adopted by the Ballard County Medical Society in call session on January 30th, 1931.

Whereas, the people of Ballard County are in many cases depending upon the National Red Cross for the necessities of life, by reason of the long continued and disastrous drought and have no money with which to pay bills, and,

Whereas, many of the people are sick and need immediate medical attention. but have no

funds with which to pay for same,

Now therefore, be it resolved that a financial crisis exists in Ballard County Kentucky, as to the Medical Profession, in that the masses of the people need medical attention and are not able to pay for same, therefore,

Be it further resolved that the Ballard County Medical Society now urgently petition the American Red Cross, or the Government, to aid the citizenry of Ballard County in procuring medical assistance, and aid said people in paying for necessary doctors bills and medicine, to the end that the health of the people may be preserved, as well as for them to have the bare necessities of life.

Signed Dr. J. C. Sullivan,  
Dr. F. H. Russell,  
Dr. W. A. Ashbrook,  
Dr. R. D. Harper,  
Dr. W. A. Page,  
Dr. Ezra Titsworth,  
Dr. T. J. Davis,  
Dr. J. F. Hahs.

**Franklin:** The Society met in regular session at 12 o'clock noon, on February 5th, 1931, in the Writing Room of the Capital Hotel.

Minutes of the January meeting were read and approved.

The meeting was called to order by the President, Dr. O. B. Demaree. Members present were: Doctors Budd, Coleman, Heilman, Minish, Patterson, Ginn, Stewart, Coblin, Travis, Demaree and Youmans.

Dr. John P. Stewart had charge of the program. Dr. Annie S. Veech of the State Board of Health read a very interesting paper on the "Modern View Point of Maternal and Child Health" which was discussed generously by most members present.

No other business, the Society adjourned to the Hotel Dining Room for lunch.

C. E. YOUMANS, Secretary.

**Harlan:** The Harlan County Medical Society held its regular January meeting on Saturday, January 24th, at noon, in the basement of the Christian Church, Harlan. The following members were present: Drs. Beauchamp, Pursiful, Paynter, Cawood, Riley, McCall, Bailey, Ball, Petty, Parks, Diefendorf, Linden, Riddell, Buttermore, and Martin.

Dr. Franklyn Jelsma of Louisville, read a paper on "Surgery of the Sympathic System." Dr. A. J. Miller of the University of Louisville, read a paper on "Pain and Its Relation to Clinical Medicine."

Dr. Bailey and Dr. Buttermore were elected as Delegates of the State Medical Society at this meeting.

Next regular meeting will be Saturday, February 21st, 1931.

M. M. RIDDELL, Secretary.





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# KENTUCKY MEDICAL JOURNAL



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NEXT ANNUAL SESSION, LEXINGTON, 1931

## JUST READY

# J. Chalmers DaCosta's "Papers"

Dr. DaCosta's thousands of former students, friends, and admirers are seizing upon this interesting collection of papers and speeches. For here again they can listen to Dr. J. Chalmers DaCosta, read the ripened wisdom of this great surgeon, teacher, thinker, writer and lover of books. Here again they have Dr. DaCosta on the platform, delivering to those few fortunates present sparkling addresses which were made to live and move by his vigorous expression, apt stories, historical allusions, rare humor.

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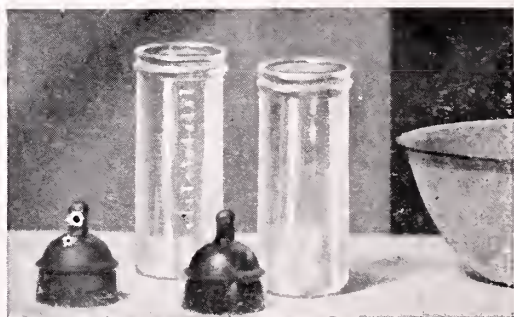
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# KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

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## EDITORIALS VIOLATION OF LAW

The Journal offers its congratulations to the members of the State Board of Health because of its recent action in revoking the certificates of two physicians who have been convicted of violation of the Federal Narcotic Law, one for grossly unprofessional or dishonorable conduct of a character likely to deceive or defraud the public, in that he had been guilty of selling a large number of prescriptions to persons not bona fide patients, unlawfully disposing of legal allotment of whisky for use in cases of emergency, and unlawfully selling a portion of legal alcohol allowance, and one for the commission of a criminal abortion. We also note that some fifteen other members of the profession, who had been convicted of violation of either the Federal Narcotic or Prohibition Laws (first offenders), have had sentence suspended upon their appeal for mercy and their promise not to hold narcotic or alcohol permits in the future.

The Kentucky State Medical Association has, by unanimous vote, at many of its annual sessions urged its members to refrain from the illegal issuing of prescriptions or use of narcotics or alcohol and has requested the State Board of Health to revoke certificates when such violations occur. Careful and reputable members of the profession can only be protected by ridding the profession of men who are willing to destroy its standing with the public by violating the law. Every physician in Kentucky has been notified repeatedly that the board considers such violations of these laws as grossly unprofessional conduct of a character likely to deceive and defraud the public.

The Journal is confident that the medical profession of the State will stand squarely behind the State Board of Health in its evident determination to rid the profession of dishonorable and disreputable members.

## TREATMENT AND PROPHYLAXIS OF WHOOPIING COUGH BY MEANS OF VACCINE

The question of treating whooping cough by means of vaccine has been a mooted question for a number of years. To read Kaupe is very illuminating and adds comfort to those who have advocated the use of the vaccine.

Kaupe reports his experiences with a whooping cough vaccine in an institution for children and nurslings. The preparation that he employed is a vaccine, which is injected in increasing concentrations. The number 1 ampules contain 2,000 million of *Bacillus hemophilus-pertussis*, the number 2 ampules contain 4,000 million, the number 3 ampules contain 6,000 million, and the number 4 ampules contain 8,000 million. The injections are made intragluteally at intervals of from three to four days. In the children's department, eight of ten children contracted whooping cough. The vaccine treatment had the effect that the sick children improved rapidly, so that they were practically cured from ten to twelve days after the first injection. The two other children remained healthy. Of the fifteen nursing, who likewise received the vaccine, two developed a mild form of whooping cough and the others either remained entirely free from it or the infection was so slight that it was hardly noticeable. The injections were almost painless and did not cause complications such as anaphylactic shock. Even those of the infants and children who developed a slight fever had always a good appetite and were not irritable. The author emphasizes that his experiences with the vaccine are limited to cases in which the whooping cough was in the beginning stage or had not yet begun. He does not know whether the vaccine therapy will have the same favorable effects in a more advanced stage of the disease. However, he recommends its use during the early stage and also for the protection of children who are exposed to whooping cough infection.

## THE TREATMENT OF MALARIA

In the treatment of Malaria we have a drug which is a specific—quinine. The method of administration and the form of quinine used depends upon the type of Malaria, the intensity of symptoms and the stage of the disease.

Several salts of quinine and the rapidity of their action depends upon their solubility. The most rapid is the dihydrochloride. The slowest, at least by mouth, is the tannate. The latter is absorbed in the small intestine.

By mouth most soluble salt appears in the urine in from fifteen to thirty minutes and most of it is eliminated in from three to twelve hours.

In this country, most always, quinine is administered by mouth. Continuous vomiting interferes with the success of this method. Ideally quinine should be given in solution, but, because of the taste this is rarely done except in hospitals. Pills and tablets are not reliable as the coating may be hard and insoluble. Fresh capsules are readily dissolved; old capsules should be avoided.

The sulphate of quinine is the usual form in which this drug is found on the market. While it is satisfactory in this form, it must be remembered that five grains of the sulphate has really only little less than three grains of the quinine, the rest being the sulphuric acid radical. The hydrochloride has nearly twenty per cent more actual quinine available.

Intravenous administration of quinine is rarely indicated in this country. It is always indicated where coma is imminent and in the presence of hyperpyrexia. When necessary it is best used as follows: Take two 10cc Luer syringes, one with a ten per cent solution of the dihydrochloride of quinine and the other filled with normal salt solution, both connected with a stop cock to an intravenous needle. As soon as the needle is in the vein the plunger of the syringe containing salt solution is gently withdrawn. If and when blood appears in the syringe the salt solution is slowly injected to prove that the puncture is satisfactory. As soon as one is sure of this the stop cock is turned and the quinine solution is slowly injected. Some of the reliable pharmaceutical houses are now making ampoules of sufficiently dilute solutions for immediate use without the addition of water. These are satisfactory.

Subcutaneous administration should never be employed. Intramuscular injections have been occasionally used but the absorption may be too slow, and, in some cases, the solution is walled off and is not absorbed.

The statement of the patient that he cannot take quinine should not be considered

when it is indicated.

Quinine is almost tasteless and can be given to children in aromatic syrups. We prefer the hydrochloride of quinine for administration by mouth and the dihydrochloride for intravenous injection.

How much and when? There are three methods: Torti advised a single dose before paroxysm. Sydenham prefers the single dose on the decline of the paroxysm. The third method, which we consider preferable, consists of fractional doses. The doses, averaging a grain or a little more an hour, may be given at two to four hour intervals and should be continued for at least one complete cycle (48 hours in tertian or 72 hours in quartan) after the fever has stopped. Thereafter use about 15 grains on two successive days of each week for at least three months. Ringing ears do not indicate that a sufficient quantity has been given. It is not the patient but the parasite at which we are directing our drug attack.

The Surgeon General of the Army recommends 30 grains of quinine each day for 10 days, followed by 10 grains a day for 30 days. We have found that this treatment produces more quinine fast cases. Fifteen grains given on Saturdays and Sundays for two or three months is not so irksome to the patient.

When vomiting is excessive and persistent and one is not equipped to give the drug intravenously, rectal injections may be used. The dosage is about the same as by mouth. The solution of the hydrochloride or an acidulated solution of the sulphate may be used. A cleansing enema should be used, as in all rectal medication. The total quantity of fluid must be kept small enough to be readily retained.

Preparatory treatment is the same as in other fevers. Calomel is the purgative most easily given and retained. We have found that four 1 grain doses at half hour or hourly intervals is enough calomel.

During the chill, blankets, hot drinks and external applications of heat are indicated. Antipyretics are rarely useful. Cold sponging followed by replacing the blankets will often help bring on the perspiration which ushers in the decline of the fever.

For the chronic malarial patient or for malarial cachexia we found quinine to act far more effectively than any iron tonics or than other treatments for secondary anemias. In these cases 15 grains of quinine should be administered in divided doses on two successive days each week for three months.

L. E. SMITH, M. D.  
Executive Secretary Kentucky  
Tuberculosis Association.



## THE AMERICAN PUBLIC HEALTH ASSOCIATION MEETING

The Sixtieth Annual Meeting of the American Public Health Association will be held in Montreal, Quebec, Canada, September 14th to 16th, at the Windsor Hotel.

The Canadian Public Health Association is making great plans to make this meeting a success and this will give Health Officers and physicians an opportunity to not only see Canada at its best season of the year, but also to attend one of the most interesting meetings the Association has ever held. Every physician in Kentucky is invited to be a guest of this Association at its Canadian meeting.

## AMERICAN ASSOCIATION FOR THE STUDY OF GOITER

The American Association for the Study of Goiter again offers an award of three hundred dollars (\$300.00) for the best essay based upon original research work on any phase of goiter presented at their annual meeting in Kansas City, Mo., April 7, 8, and 9, 1931. It is hoped this offer will stimulate valuable research work, especially in regard to the basis cause of goiter.

Competing manuscripts must be in the hands of Corresponding Secretary J. R. Young, M. D., Terre Haute, not later than April 1, 1931, to permit the award committee sufficient time to examine all data. Manuscripts arriving after this date will be held for the next year or returned at the author's request.

First award of the 1930 annual meeting held in Seattle was given Dr. William F. Rienhoff, Jr., of Johns Hopkins University, Baltimore. Drs. O. P. Kimball of Cleveland, O.; E. P. and D. R. McCullagh, Cleveland Clinic Foundation, Cleveland, O., Robert P. Ball of the University of Louisville, received honorable mention.

## PAY YOUR DUES

Three hundred members of the Association have failed to pay their dues this year and the Journal regrets that under the postal laws, their names will be dropped from the membership rolls on April 1. Two members who were careless about this matter last year paid more than a thousand dollars for attorneys in mal-practice cases. It is very important for physicians to keep in good standing in their local and State societies.

## SCIENTIFIC EDITORIAL FOOD AND TUBERCULOSIS

Adequate food is a vital factor in any form of treatment or scheme in the prevention of Tuberculosis. In recent years there has been a decided change in the dietary habits of the American people which has resulted in an increased consumption of milk, butter and vegetables (approximately 35% each) in contrast to a 13% increase in population. The decline in the mortality rate for Tuberculosis certainly is in part due to this increased food consumption and to the elevated standard of living.

Tuberculosis bears a definite relationship to the economic status; whenever living conditions are good, tuberculosis mortality declines, when conditions are poor, tuberculosis mortality ascends. This was strikingly demonstrated in the World War, particularly in the Central European countries. There was a sharp rise in tuberculosis death rates, and in Belgrade this reached the astounding figure of 1400 per 100,000. The increased mortality was principally due to lack of adequate diet and particularly to a deficiency in the fat soluble vitamins.

In a recent investigation of the food intake of dispensary patients, Gordon and Flanders found a caloric deficiency a more serious problem than the consideration of vitamins, some of the diets ranging as low as 800—1000 calories daily; the average caloric intake being 1400.

The diets were frequently low in cereals, green vegetables and dairy products. To a selected group of patients vitamin A and D in a concentrated form were administered which resulted in a gain in weight of 4 to 10 pounds in 31% of the patients. It was evident they say "that response to administration was more definite in patients who consumed liberal portions of cereals, dairy products and green vegetables."

Unfortunately there is an indefinite number of our own people in the state, that are not only receiving a very inadequate supply of vitamins but are in actual need of the necessities of life. Their prime requisite is food first; we must satisfy their caloric requirement specifically and their vitamin needs incidently. It seems to the writer that the physicians and field nurses scattered over Kentucky are ideally situated so as to have first hand information of the needs of their community. This data should be forwarded promptly to the proper agency. Unless their necessity is relieved we may expect a recrudescence of tuberculosis, and

an increased incidence of other respiratory infections.

## REFERENCES

1. Bailey B. Burritt: Standard of Living as a Factor in Decline of Tuberculosis. Transactions National Tuberculosis Association, 1929, pp. 245-252.
2. Burgess Gordon and Elizabeth Flanders: Observations of Persons with Potential Vitamin Deficiency. American Review Tuberculosis, Vol. 33 1, pp. 84-89. Jan. 1931

O. O. MILLER.

## ORIGINAL ARTICLES

## SCARLET FEVER\*

GEORGE F. DICK, M. D.

Chicago, Ill.

The medical literature contains many reports of unsuccessful attempts to find the cause of scarlet fever; a specific cure, or a method of preventive inoculation.

The unsuccessful attempts recorded make up a mass of literature in which most authors conclude their reports by saying that while they did not succeed, they report their incomplete results in the hope that they may aid others to success where they themselves failed.

This literature constitutes a remarkable record of two and a half centuries of continuous endeavor.

But the recording of failures for the benefit of future workers in the field finally grew to such a mass of negative results as to *mislead* those whom it did not *discourage*.

Clinical experience in scarlet fever had furnished certain well verified but disconnected facts which could not be explained on any known theory.

The disease was known to be contagious; to be accompanied by a rash and other manifestations of a poison or virus in the system; one attack was known to result in permanent immunity in the majority of cases.

It was not until new information was obtained within the last ten years that the gaps in this knowledge could be filled in and practical, specific methods developed for the control of scarlet fever.

In speaking of these new methods for the control of scarlet fever, there is not time to dwell on theoretical matters. I assume that you want to hear from me only known facts and of such facts, only those capable of practical application.

The basic facts are as follows:

1st. Scarlet fever is now known to be caused by a specific hemolytic streptococcus;

that is, one of the group of bead-like bacteria which dissolve the red coloring matter out of blood.

2nd. The nature of this scarlet fever hemolytic streptococcus is such that it produces during its growth a potent, soluble poison, or toxin. This toxin causes the rash and vomiting characteristic of scarlet fever. The toxin does not cause the sore throat which is the initial symptom. The sore throat is caused by the streptococcus growing in the throat and setting up a local inflammation.

The mechanism of the ordinary—non-fatal—case of scarlet fever is this: On exposure through contact with a person infected with the scarlet fever streptococcus (either one who has the disease at the time, or an immune carrier), or drinking or eating food, such as milk, contaminated with the scarlet fever streptococcus, the microbe gains entrance to the throat where it lodges and multiplies. It produces the sore throat and manufactures its toxin which is absorbed into the blood. Recovery and subsequent immunity depend on the development in the body of the scarlet fever patient an antidote for the toxin which is known as "scarlet fever antitoxin."

By application of this exact knowledge concerning the mechanism of scarlet fever, methods have been developed and materials furnished for:

First. A method of identifying scarlet fever streptococci.

Second. Control of quarantine by means of nose and throat cultures on blood agar plates.

Third. A skin test for determining susceptibility to scarlet fever.

Fourth. A method of active immunization of susceptible persons.

Fifth. An antitoxin specific for scarlet fever for use in the treatment and in the prevention of the disease.

Results are now available from observations made during the past seven years in a series of 41,560 persons on whom skin tests were made and on 14,032 susceptible persons who were immunized against scarlet fever by injection of graduated doses of the sterile toxin and on groups of susceptible individuals found to be infected after exposure who were given prophylactic doses of antitoxin. All of these persons were exposed to scarlet fever in one or more epidemics. Results are also available from a series of 1017 cases of scarlet fever in which the antitoxin was employed therapeutically.

The technique of the skin test for susceptibility to scarlet fever is exacting. Among the common sources of error are inadequate

\*Read before the Kentucky State Medical Association at Bowling Green, September 15-18, 1930.



syringes and needles; attempts to sterilize the syringe and needle with alcohol, which precipitates the minute amount of toxin in the skin test solution; failure to replace the water left in the needle after boiling with skin test solution by expelling at least one-tenth cubic centimeter of solution through each fresh needle used; boiling the syringes and needles in alkaline tap water instead of distilled water; estimating the amount of skin test solution injected by the size of the wheal produced instead of accurate measurement by graduations on the syringe; subcutaneous instead of intracutaneous injection; and failure to observe the reaction between 20 and 24 hours after the test is made. The commonest error of all is interpreting positive reactions as negative. The almost universal tendency to regard slightly or even moderately positive reactions as negative may be due to familiarity with the Schick test which is usually interpreted as negative unless there is induration. Skin reactions with scarlet fever toxin are never indurated. They should be observed in a bright light between 20 and 24 hours after the injection. Observations made after 24 hours are not reliable. The slightest flush or reddening, no matter how faint the color, constitutes a positive reaction if it measures as much as ten millimeters in any diameter.

The reliability of the skin test in determining susceptibility to scarlet fever is shown by the results in 22,860 persons with spontaneously negative reactions. All of these immune persons have passed through one epidemic of scarlet fever and some have gone through several epidemics without contracting the disease; with the possible exception of one boy who desquamated on the feet and gave a history of having had a sore throat. The most severe test of the skin reaction is found in a group of 3,162 pupil nurses and internes who were allowed to go on contagious disease services when their skin tests were found to be spontaneously negative. In spite of prolonged and intimate exposure to scarlet fever, none of this group contracted the disease.

New born infants frequently show negative skin reactions which become positive during the first year of life. After early infancy, the incidence of immunity to scarlet fever depends on conditions which favor exposure to the disease. Immunity is not related to age or sex except indirectly as these factors influence the frequency of contact with other people. The most important factor in the spontaneous development of immunity is crowding which favors the transfer of contagion and immunization through infection. Figures showing incidence of susceptibility

to scarlet fever in one group do not give an idea of what the incidence of susceptibility in another group might be unless the living conditions are practically the same. In an overcrowded institution the incidence of susceptibility may be as low as 10% and in rural or suburban groups it may be as high as 85%.

In a series of skin tests it will be found that the positive reactions show all gradations, from small areas of faint color to intensely red reactions three to five centimeters in diameter. These differences in the intensity and sizes of the skin reactions correspond to differences in degree of susceptibility and partly explain the great variation in severity of scarlet fever. The intermediate stages of the reaction also indicate that, in many persons, immunity to scarlet fever is acquired gradually through repeated infections with scarlet fever streptococci without the development of a typical attack of the disease. It has been learned that one attack of scarlet fever sore throat does not necessarily confer complete immunity; while typical attacks of scarlet fever usually result in complete immunity as indicated by negative skin reactions in convalescent scarlet fever patients and the comparative infrequency of second attacks of the disease.

Active immunization with graduated doses of sterile scarlet fever toxin in 14,032 susceptible persons caused no injury in any instance. In three institutions, urine analyses were made before, during and after immunization. There was no evidence of nephritis caused by the immunization. Some persons who had nephritis were immunized without causing an exacerbation of the condition.

In a large series, including highly susceptible individuals general reactions may be expected in about 10% after each dose. But this 10% is not composed of the same individuals after the different doses. The most highly susceptible persons usually react more strongly on the first doses; others may not have any reactions until the fourth or fifth dose is given. As a rule reactions after the last and largest dose are fewer and milder than after the smaller first doses. The immunizing doses should be accurately graduated and it is important to give them in the proper sequence in order to avoid unnecessarily severe reactions. But mistakes have been made in which the last dose has been injected as a first dose and no fatalities have occurred. Experimentally, we have injected as much as twenty cubic centimeters of undiluted toxin, containing nearly one million skin test doses, without causing

injury and without producing nephritis in human beings.

The larger immunizing doses of toxin give a higher degree of immunity in a higher percentage of susceptible persons. In much of the work reported, small doses have been employed. We have not been able to verify the results of those who claimed negative skin tests in 85% after a maximum dose of three thousand skin test doses of preserved toxin. Neither have we been able to verify the claims as to the protective value of ricinoleated toxin described by Larson. We used Larson's material in three one cubic centimeter doses and found that it caused more severe reactions than followed the graduated doses of toxin. The skin test did not become negative in any of the susceptible persons who received the Larson preparation and, on subsequent exposure to scarlet fever, a number of them developed the disease. The wide use of a commercial preparation of the ricinoleated toxin and the unfounded claims made for it by the manufacturer have done much to discredit the new methods for the control of scarlet fever and tend to discredit preventive immunization in general. In spite of our repeated warnings against this preparation, it has been widely distributed and employed by physicians in unsuccessful attempts to control epidemics of scarlet fever.

The doses of sterile toxin for active immunization should be graduated, beginning with five hundred skin test doses in the first injection and increasing to eighty or one hundred thousand skin test doses in the last injection. The injections are made subcutaneously at intervals of one week. If the full amount is given in each dose, the five doses may be counted on to immunize completely 95% of susceptible persons and to considerably modify the susceptibility of the remainder. Two weeks after the last dose is given another skin test is made, using one-tenth cubic centimeter of the skin test solution, or one skin test dose, on the right arm and two-tenths cubic centimeter, or two skin test doses, on the left arm. If the reaction on either arm is positive, the fifth dose is repeated.

Unless the immunization is carried to the point of a negative skin test, complete protection against scarlet fever cannot be expected; though the severity of a subsequent attack of scarlet fever would be modified by the partial immunization.

The duration of active immunity as well as the degree of immunity depends on the amount of toxin injected. Retests made at intervals of one, two and three years indicate that more than 90% of those immunized to the point of an entirely negative skin

test retain their immunity. Between 5 and 9% slip back and require a second immunization.

Under ordinary conditions, not more than 10% of contacts become infected with scarlet fever streptococci, but in institutions where the inmates are in contact with one another during most of the twenty-four hours, more than 50% may become infected during a prolonged epidemic of scarlet fever and it may be expected that eventually most of the susceptibles will develop scarlet fever in some form. Conditions in institutions where the disease is epidemic are favorable for determining the efficacy of active immunization in controlling scarlet fever. A number of such institutions have been under observation during the past six years. Skin tests were made on every one and the susceptibles were immunized with graduated doses of toxin. No case of scarlet fever has occurred among 12,182 susceptible persons immunized in institutions where scarlet fever was epidemic. Controls were furnished by typical cases of scarlet fever developing in newly admitted persons who had not been tested and immunized before they were introduced into the infected community, and by cases of scarlet fever in teachers and attendants who refused immunization.

An opportunity to study results of active immunization is also found in 2,805 susceptible nurses and internes immunized before they began work in contagious disease hospitals. These artificially immunized persons have had the same prolonged and intimate exposure to scarlet fever as the naturally immune nurses and internes. None have contracted the disease. Controls in this group are furnished by fifty-seven cases of scarlet fever in nurses and internes who entered before they had been tested for susceptibility or who were known to have positive skin reactions and had not been immunized.

Since persons who are immune to scarlet fever do not require protection, the indiscriminate administration of prophylactic doses of scarlet fever antitoxin to contacts is not justified. If it is not possible to make skin tests and nose and throat cultures on blood agar plates to determine which contacts need antitoxin, it is better to watch all of them closely and give a therapeutic dose of antitoxin on the development of any symptoms suggestive of scarlet fever.

Where it is possible to make skin tests and cultures and establish quarantine separating the infected from the non-infected persons, active immunization with the toxin of the non-infected susceptibles may be begun at once and prophylactic doses of scarlet fever



antitoxin may be given to persons who are both susceptible and infected.

By the use of nose and throat cultures on blood agar plates, skin tests for susceptibility, active immunization with the toxin, and use of antitoxin prophylactically in infected susceptibles, it is possible in a group, small enough to test and culture in one day, to bring an epidemic of scarlet fever under control in 48 hours.

The passive protection conferred by a prophylactic dose of any antitoxin is transient, lasting at the most two days. Active immunization with the toxin should be begun in the infected susceptibles one week after the prophylactic dose of antitoxin is given.

Scarlet fever antitoxin may be employed therapeutically with advantage in all cases of scarlet fever as soon as the appearance of the rash suggests the diagnosis. Given early in adequate dosage, scarlet fever antitoxin gives brilliant results. The patient sometimes recovers so promptly that the attending physician wonders if he could have been mistaken in the diagnosis.

The longer the patient goes without antitoxin, the less he benefits from the antitoxin when it is given. It should not be withheld until it becomes apparent that the attack is a severe one, but given in time to prevent the development of a severe attack.

Reports as to the effect of scarlet fever antitoxin in reducing the incidence of complications are sometimes conflicting due to delay in administering the serum and to the use of poor preparations of antitoxin.

Scarlet fever patients in hospitals do not afford the most favorable material for determining the curative value of the antitoxin; because administration of the serum is delayed until the diagnosis of scarlet fever has been confirmed, the health department notified, and arrangements made for transferring the patient to a hospital. But, even with the delay involved in such cases, it has been shown that scarlet fever antitoxin reduces the frequency and the severity of complications. Results in an antitoxin series which included the most severe cases, compared with results in a control series comprised of the cases which on admission to the hospital appeared to be less severe, show that mastoiditis occurred three times as often in the patients who did not get antitoxin as in the antitoxin series; the incidence of kidney complications in the series treated without antitoxin was four times that in the antitoxin series; and in spite of the milder appearance at the onset, the death rate in the control series was twice that in the antitoxin series.

## DISCUSSION

Epidemics of scarlet fever have been successfully controlled in the following places:

Addison Orphanage at Addison, Ill.

Augustana Hospital, Chicago, Ill.

Berea College, Berea, Kentucky.

Bloomington, Ill. Hospital.

Brokaw Hospital, Normal, Ill.

Camp Algonquin, Algonquin, Ill.

Cedar Rapids Iowa Public Schools.

Chicago Heights Public Schools.

Town and surrounding county of Clay Ky.

Concordia College, River Forest, Ill.

Council Bluffs, Iowa Public Schools.

Decatur and Macon County Hospital, Decatur, Ill.

Fulton Ill. Public Schools.

Holy Family Parochial School, North Chicago, Ill.

Home for Destitute Crippled Children, Chicago.

Hudson, Iowa Public Schools.

Lake Forest Academy, Lake Forest, Ill.

Lincoln State Home and Colony, Lincoln, Ill.

Lincolnwood School, Evanston, Ill.

Maywood Baptist Orphanage, Maywood, Ill.

Mooseheart Orphanage, Mooseheart, Ill.

Morgan Park Military Academy, Morgan Park, Ill.

New England Peabody Home for Crippled Children.

Rockford Children's Home, Rockford, Ill.

Coyne-Electrical School, Chicago, Ill.

St. Charles State Reformatory, St. Charles, Ill.

St. Hedwig's Orphanage, Niles, Ill.

St. Joseph's Bohemian Orphanage, Lisle, Ill.

St. Luke's Hospital Training School, Chicago, Ill.

Sears-Roebuck Company, Chicago.

Sunset Camp, Antioch, Ill.

Tampico, Ill. Public Schools.

Waterloo, Iowa Public Schools.

Victory Hospital, Waukegan, Ill.

## Immunization Against Scarlet Fever Has Been Adopted by

Russia as a compulsory regulation of the national government.

Mexico as a compulsory regulation of the national government.

China by the governmental agencies for the

control of epidemics.

**It is Offered by the Health Department of**  
 Rochester, New York      Michigan State  
 New York City              Iowa State  
                                  Kentucky State

**It Has Been Adopted as a Routine Measure**  
 in the training schools for all of the nurses in  
 Cook County Hospital      Presbyterian Hospital  
 Evanston Hospital          Durand Hospital  
                                  Lutheran Deaconess Hospital

For Nurses or Students taking Contagious  
 Disease services in

Rush Medical College  
 University of Illinois Medical School.  
 Loyola Medical School.  
 Wesley Memorial Hospital.  
 South Shore Hospital.  
 West Suburban Hospital.  
 St. Anne's Hospital.  
 Norwegian American Hospital.  
 St. Elizabeth Hospital, Chicago.  
 Swedish Covenant Hospital, Chicago.  
 Illinois Research Hospital.  
 Augustana Hospital, Chicago.  
 Frances Willard Hospital, Chicago.  
 Garfield Park Hospital, Chicago.  
 Grant Hospital, Chicago.  
 Lake View Hospital, Chicago.  
 Ravenswood Hospital, Chicago.  
 Women's and Children's Hospital, Chicago.  
 Lutheran Deaconess Hospital, Chicago.  
 Alton State Hospital, Alton, Ill.  
 Beatrice Sanitarium, Beatrice, Nebraska.  
 Brokaw Hospital, Normal, Ill.  
 Bryan Memorial Hospital, Lincoln, Neb.  
 Community Hospital, Geneva, Ill.  
 Cottage Hospital, Galesburg, Ill.  
 Evangelical Deaconess Hospital, Freeport, Ill.  
 East Moline State Hospital, East Moline, Ill.  
 Green Gables Sanatorium, Lincoln, Neb.  
 Iowa Methodist Hospital, Des Moines, Iowa.  
 Iroquois Hospital, Wayseka, Ill.  
 Kankakee State Hospital, Kankakee, Ill.  
 Lincoln State School and Colony, Lincoln, Ill.  
 Lutheran Hospital, Beatrice, Neb.  
 Lutheran Hospital, Moline, Ill.  
 Lutheran Hospital, Norfolk, Neb.  
 Lutheran Hospital, York, Neb.  
 Methodist Hospital, Madison, Wis.  
 Milwaukee Maternity and General Hospital,  
     Milwaukee, Wis.  
 Misericordia Hospital, Milwaukee, Wis.

Milwaukee County Hospital, Wauwatosa, Wis.  
 M. A. Montgomery Memorial Sanitarium  
     Charleston, Ill.

Mt. Sinai Hospital, Milwaukee, Wis.

Orthopedic Hospital, Lincoln, Neb.

Pekin Public Hospital, Pekin, Ill.

Rochester State Hospital, Rochester, Minn.

Sherman Hospital, Elgin, Ill.

St. Joseph's Hospital, Ashland, Wis.

St. Mary's Hospital, Superior, Wis.

St. Luke's Hospital, Racine, Wis.

Theda Clark Memorial Hospital, Naenah, Wis.

Wausaw Memorial Hospital, Wausaw, Wis.

White Community Hospital, Whitehall,  
     Wis.

Victory Memorial Hospital, Waukegan, Ill.

St. Mary's Hospital, Sparta

Elmhurst Hospital, Elmhurst, Ill.

Wise Memorial Hospital, Omaha, Neb.

West Lake Hospital, Melrose Park, Ill.

Immunization against Scarlet Fever has been  
 adopted as a Routine in a large number of Insti-  
 tutions caring for children including:

Mooseheart Orphanage,

Public Schools of Gary, Ind.

Public Schools of Fulton, Ill.

Public Schools of North Chicago and

State Hospital at Dixon, Ill.

The voluntary attendance at the Preventive  
 Medicine Clinic maintained by The Scarlet  
 Fever Committee has increased from 300 new  
 patients in 1925 to more than 3000 in 1929 and  
 the rate of attendance thus far in 1930 indi-  
 cates that the number will reach at least 5000  
 this year.

The use of scarlet fever antitoxin has been  
 adopted as a routine measure in the treatment  
 of scarlet fever in hospitals too numerous to  
 mention here. It has been introduced into the  
 fever hospitals in England and is in general  
 use in most countries of the world. It is dis-  
 tributed by various health departments in this  
 country including those of New York State, In-  
 diana State, Massachusetts State, Michigan  
 State, Kentucky State and is manufactured for  
 distribution by the Danish State Serum Insti-  
 tute, The Connaught Laboratories of the Uni-  
 versity of Toronto, The Austrian State Serum  
 Institute, The State Serum Institute of Holland,  
 The Russian State Serum Institute, The Austri-  
 an State Serum Institute and The Chinese  
 Government, besides being manufactured by  
 the commercial concerns throughout the world.



The amount of properly prepared and authorized scarlet fever antitoxin used annually in this country has increased more than ten times since it first appeared on the market.

In the training school of Cook County Hospital a group of 100 affiliating nurses were recently entered without testing for susceptibility to scarlet fever or immunization, within two months 7% of the group had developed scarlet fever. In this same hospital, there has been no case of scarlet fever in the last four years in nurses immunized against scarlet fever or found to have spontaneously negative skin tests. In the same period of time there have been 128 cases of scarlet fever in a control group of nurses who were not tested or immunized.

In the Durand Hospital where formerly 7% of the pupil nurses contracted scarlet fever while on duty, there has been no case of scarlet fever in a nurse with a primary negative skin test or a skin tested rendered negative by immunization with toxin since immunization was adopted.

It is apparent from this mass of information that the modern methods for the prevention and treatment of scarlet fever have been adopted by the world in general. If there remain isolated instances of communities or individuals who have lagged behind, it is only to be expected in view of the fact that one still encounters occasionally objectors to small pox vaccination or to diphtheria antitoxin.

**Infective Granulomas and Streptococcal Infection.**—Poynton and Moncrieff relate the case of a healthy child, aged 13 months, who following a "bad cold," developed glandular enlargements that clinically bore a strong resemblance to those of Hodgkin's disease; postmortem examination revealed conditions, such as the nodules in the liver and the histologic appearance of the glands, that confirmed this diagnosis. At the same time there was evidence of a streptococcal infection, and it is on the relationship of this to the lymphadenomatous condition that the authors focus attention. They hold that if the streptococcal infection had been more virulent at the onset or the child's resistance less, an acute septicemia would probably have developed at once on her "cold" and, on the other hand, if her resistance had been greater the terminal acute features would not have been present but she would have died with cachexia and cardiac failure as in "ordinary" lymphadenoma. In other words, the child's tissues put up an unusual borderline type of response to streptococcal invasion, which closely resembled Hodgkin's disease if, indeed, it was not identical.

## SHOULD RESECTION OF THE COLON BE A ONE STAGE OR TWO STAGE OPERATION\*

HART HAGAN, M. D.

Louisville.

The colon may be subjected to surgical attack because of the presence of various lesions. These lesions may be included under general classifications as follows: (1) congenital deformities; (2) inflammatory lesions; (3) benign tumors; and (4) malignant tumors. It is the presence of some lesion of the latter group which most frequently demands a radical resection of the colon. For the colon is the site of more cancerous growths than any other portion of the alimentary tract, with the exception of the stomach. But there are certain anatomical and functional differences between the stomach and colon which largely explain the far greater hazard involved in resections of the colon.

There are also striking differences, from an anatomical and functional standpoint, in the different segments of the colon; and these factors are important guides in the choice of operative procedure. For instance, the right colon is easier to mobilize and therefore more readily resected than the left side. The liquid contents of the right side are less septic than the more solid contents found in the distal colon. The blood supply is ample and more constant on the right than on the left side. The lymphatic supply of the cecum and ascending colon is more extensive than that of the left colon; and seems to act as a defensive mechanism, since metastases occur later on the right side than in the other segments of the colon. In the transverse colon we have a segment which is easy of approach, but maintained by an unsatisfactory blood supply. The descending colon, except for the sigmoid, has a short mesentery and a blood supply which is not too dependable. Besides the above mentioned factors, which influence our choice of operative procedure, one should have in mind the common immediate and ultimate causes of failure in surgical treatment of colonic lesions. The immediate mortality is almost entirely from infection. The resulting peritonitis being caused by contamination at the time of operation, or from leakage at the suture line. Often this unfortunate result can be avoided by careful selection of the patients for operation; and by proper preparation of the patients for operation. In cases having acute obstruction no attempt

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should be made to do a primary resection, but immediate relief should be afforded by some type of drainage proximal to the lesion. In patients who do not have obstruction, the bowel should be thoroughly cleansed by a purgative and followed by enemata for several days prior to operation. During this period the patient should take large quantities of fluids and a non-residue diet high in carbohydrates.

In considering the above mentioned and other factors which will determine our choice of operative procedure one is forcibly reminded of the history of the development of prostatic surgery, the principles of which have been so well standardized. There are surgical principles involved in colonic surgery which have been encountered in prostatic surgery. Before the advent of the two stage operation for prostatectomy, the post-operative mortality was quite high; and this was caused primarily by obstruction and secondarily by infection. With an acute prostatic obstruction demanding surgery one would not do more than decompress the bladder by drainage in the initial stage. And so in colonic surgery when confronted with a case of acute, or marked obstruction, the safest procedure is to decompress the bowel by drainage—instituting a colostomy, ileostomy or cecostomy. And in fact most surgeons have accepted the principle of instituting drainage by one of these methods prior to resection of the colon; or of instituting it at the time of resection.

Lesions of right colon rarely cause obstruction and the anatomical and functional factors mentioned above allow this segment to lend itself readily to resection in one-stage. This should be completed by an aseptic anastomosis of the ileum to the transverse colon using the Parker-Kerr basting stitch or the Rankin clamp method, and should be accompanied by an ileostomy to protect the suture line against subsequent damage by gaseous distention.

In the transverse colon we have a segment which is easy to mobilize but one that gives a high mortality in cases of resection and anastomosis in one stage because of the unsatisfactory and variable blood supply. Most surgeons agree with Miller in his report of a series of cases from Johns Hopkins Hospital in which he found his highest operative mortality to follow single stage resections when employed in the transverse colon. The most desirable method of treating transverse colonic lesion is by segmental resection and an aseptic end to end anastomosis preceded by ileostomy or cecostomy. However, many surgeons insist that the Mikulicz (or Paul) procedure is the method of choice in a large

percentage of transverse colonic lesions. This segment, and the sigmoid, have been the points of election for employment of the Mikulicz exteriorization operation. But this procedure is to be commended more as an excellent palliative measure—for there seems to be an increasing tendency among surgeons to modify this operation or to abandon it. The fact that the typical Mikulicz does not provide a satisfactory gland dissection, that it brings a malignant growth in apposition with the cut surface of the abdomen, and that it may be complicated by sloughing and extension of infection provides basis for serious objections. Published statistics from the Mayo Clinic and other surgeons indicate that the combined immediate and ultimate mortality arising from these causative factors, associated with a Mikulicz, is at least equal to that following one stage resection of the right colon or graded resections of the left side.

In lesions of the left colon a segmentary resection in multiple stages is the procedure of choice. In most instances a preliminary colostomy or cecostomy should be made and a resection undertaken when the maximum improvement of the patient seems to have been attained. The chief advantage claimed for the cecostomy is that it is furthest removed from the field of operation and gives less danger of contamination from this source at the time of resection. When a colostomy is employed it is important to place it at a point well removed from the operative area to be used at the subsequent resection. As pointed out above the Mikulicz procedure or some of its modifications may be considered in selected cases involving the sigmoid. It is also possible in certain cases of freely mobile annular carcinoma of the sigmoid to do a primary resection and an end to end anastomosis in one stage if accompanied by proximal drainage to protect the suture line during the healing process. And in fact in an occasional case involving the lower sigmoid it is possible to secure drainage by introducing a rectal tube and fixing the end proximal to the site of anastomosis. However, other methods of proximal drainage seem better and more dependable than this method. And the last mentioned procedures will undoubtedly give a higher mortality than the graded stage. The scope of this paper will not permit any detailed discussion of those lesions involving the rectum and recto-sigmoid. However, there is general agreement that resection involving these regions should be carried out in multiple stages.

Post operative treatment of the patient who has had a colonic resection should be so conducted that the intestinal tract is placed en-



tirely at rest and the suture line of the bowel protected from distention until healing can be well advanced. This can best be accomplished by withholding fluids by mouth for the first three to five days and giving ample saline and glucose solution subcutaneously and intravenously. Blood transfusions are frequently indicated in the post-operative treatment as well as in the pre-operative treatment. It is also advisable to inhibit peristaltic movement of the bowel by proper medication.

#### CONCLUSIONS

1. The right colon, including the splenic flexure, may be resected and anastomosis completed in one stage with safety if accompanied by an ileostomy.

2. In the transverse colon a graded operation consisting of a preliminary ileostomy or cecostomy and a subsequent segmentary resection with an end to end aseptic anastomosis is the operation of choice.

3. In resection of the left colon a graded operation involving two or more stages is the method of choice; and in most cases a preliminary cecostomy or colostomy followed by segmental resection and anastomosis will be the most satisfactory procedure.

4. The Mikulicz operation is to be considered for selected cases of the transverse colon and sigmoid; but the usefulness of this procedure is being limited by the institution of modifications of the Mikulicz, or by improvement in technique of preferable methods.

5. The presence or absence of colonic obstruction: the adequacy of the blood supply, the mobility of the involved segment and the general condition of the patient are the most dependable guiding points to aid one in selecting the proper degree and type of operative procedure.

#### BIBLIOGRAPHY:

- Bell, L. P. Arch. Surg. 20:491, 1930  
 Erdman and Clark, Am. Surg. 89:54, 1929  
 Judd, E. Starr, Sou. M. J. 17:75, 1924  
 Jones, D. F., New England J. M. 202:162, 1930  
 Miller, R. T., Am. Surg. 78:209, 1923  
 Moore, A. B., Jour. A. M. A. 91:1094, 1928  
 Movnihan, Sir Berkeley, Abdominal Operations, W. B. Saunders Co. 1926  
 Rankin, Fred W., Surgery of the Colon, D. Appleton & Co., 1926.  
 Rankin, Fred W., Am. Surg. 89:62, 1929.  
 Rankin and Bagen, Arch. Surg. 19:518, 1929.  
 Rankin, Fred W., Jour. A. M. A. 83:86, 1924.  
 Sistrunk, Walter E., Jour. A. M. A. 91:1800, 1928.  
 Sistrunk, Walter E., Am. Surg. 88:597, 1928.  
 Wathen, John R., Ky. M. J., 17:267, 1929.

#### DISCUSSIONS

**Louis Frank, Louisville:** Mr. Chairman and Gentlemen: I was very glad to hear this paper, as I am deeply interested in this subject. I think Dr. Hagan, the essayist, has given us practically a complete resume with the indications for the various types of operations.

What we are going to do, that is whether the operation shall be one stage or two stage depends in a measure, as he said—and I would only emphasize some of the points he has

brought out—on whether or not we have acute obstruction at the time we first see the patient.

A case with acute obstruction and one that is non-obstructive, present very different conditions with which to deal: in the one the bowel is traumatized, there probably is already invasion of its wall by bacteria, in the other this condition does not exist. In the obstruction cases, no matter where it may be existent, there should be a positive rule of a two stage operation and it should always be made if we are to give the patient the best opportunity for a recovery from the operation.

My discussion will very largely deal with the treatment of carcinoma. In the cases that have no complete obstruction, that are unobstructed at the time the diagnosis is made, here, as the essayist said, it is a very safe rule to put down that carcinoma, or even a tumor in the cecum or in the ascending colon may be treated by single stage operation, where as all growths in other portions of the bowel best be treated by two stage operation, even in the sigmoid. The lower bowel presents a most septic area and if we are to give the patient the benefit of every advantage, handling growths here in the best way, I think it should be by a two stage operation.

Carcinoma of the cecum is, next to cancer of the body of the uterus, the most favorable seat for this disease with reference to securing a permanent cure. Next to cancer of the body of the uterus, I think we have here also the most favorable site for cancer, so far as cure following operation is concerned.

Here, I think that our permanent recoveries will depend upon seeing these patients, and diagnosing their disease sufficiently early. In the first place the disease metastasizes slowly. It can be removed completely. Block glandular dissection can be done, and we have the best opportunity of giving the patient a permanent cure, that is a recovery that will not be followed by recurrence of the disease.

We know that the most favorable site for cancer as far as we are concerned from the standpoint of cures, is in the body of the uterus.

Now, again with reference to the operation that should be done, I, too, agree with the essayist, and think that all of these cases, no matter whether you are doing a one stage or a two stage operation, should have a gas vent or drainage above the point of operation. I think this safe-guards the patient tremendously. The mortality, in the past, from operations about the large bowel has been tremendous. Our deaths usually come after the fifth, sixth, or seventh day. We wonder why: it is usually the result of a blowout on account of gas distension, a blowout at the line of the suture.

As to the method of operation, I think that direct anastomosis in the transverse colon should

never be attempted for the reasons given. The blood supply here is precarious, and it is just as easy to do an end to side, or side to side anastomosis here as it is a direct, and certainly this can be accomplished with the greatest safety to the patient and with less danger of infection subsequently.

The breaking down of the suture line in the large bowel, behind the peritoneum, is not an uncommon event. The disasters that we have met with have been directly as a result of this. We have no deaths from general infection at the time of operation, but they have come as a result of the giving away of the suture line and subsequent infection.

I believe that some modified Mikulicz operation probably in the transverse colon, and descending colon, and even in the sigmoid is a type to which we should give greatest consideration, and in the hands of most surgeons, or those that are not doing a great number of these operations, it can be accomplished with the greatest advantage to the individual.

Our recent practice has been to bring the tumor out, and take away the mass at the time of the preliminary operation, instead of exteriorizing it, and leaving it for several days and then taking it away. We have taken away the carcinoma mass in the first step when bringing the tumor out of the abdomen, and at the same time removing such part of the mesentery as contains involved glands.

In this way we obviate the one great objection that has been advanced to the Mikulicz operation which the essayist has drawn attention to. That is the implantation of carcinoma in the abdominal wall at the time of operation. Putting on our clamps and doing our suturing, and then taking the mass out, to be followed after sufficient time by the clamp to cut away the partition between the two loops has been our procedure.

I wish to say just one word of warning about setting in the clamp in those operations that are done in the transverse colon, and that is, great care should be taken that we put them into the big bowel and get the small bowel out of the way, otherwise the jejunum may come in contact with them and compress that part of the small bowel with resultant biliary or high bowel fistula into the transverse colon. This will occur if care is not taken to prevent it.

I again want to compliment the essayist on the paper, and to say that, as I see it, he has covered practically all of the essential points that I think it is necessary to bring out in a discussion of this operation.

Now, just one other point which he touched upon, and that is the care of his patients. Most of these individuals with obstruction come with a loss of water. A great many of them are anemic. Many of the cancer cases occur in old

people and we should be very particular to re-establish the water balance of these patients, either by transfusion if you choose and if you also want to restore their blood, or by means of hypodermoclysis, but in any event they must get large quantities of water, and this must not be overlooked. They should be given from 2500 to 3000 c. c. of water daily for a period of several days at least.

We haven't the time, in the preparation of these patients, primarily, to do all the finer laboratory studies, but we do have time, after we do our preliminary colostomy, before the second operation for removal of the growth is done to make these studies and to give the patient time to get into a more perfect condition, and to get the resistance and the reserve beyond what may be absolutely necessary, so that they can resist the removal of the portion of the bowel containing the tumor.

I believe that too many of these cases are abandoned. When one gets these obstruction cases, particularly carcinoma cases which may show large tumors by x-ray, we do a colostomy on them and let them go at that. This is shown because some of them live two or three years after the colostomy is done. I saw a man very recently who died without operation, who had gone eighteen months since coming under observation and having the diagnosis made. His abdomen had never been opened. The abdomen, in all of these cases, should be opened, and when a diagnosis of carcinoma is made, we should examine the lower abdomen for implants, and the liver should be examined for metastases as the first step. If they are absent from these regions and the glandular involvement can be removed then that patient may have a very good chance of a cure. (Applause.)

**Gant Gaither, Hopkinsville:** Dr. Hagan was kind enough to ask me to continue the discussion, but I am not going to go through the formality of appointing a chairman just now.

I searched over the records in my own work for the last five years, and found but a limited number of resections of the colon, so few that they mean very little in as large a number of cases as he has reported. However, it may be interesting to see the conditions for which they were done and the results. There were nine cases of resection. Two of them were for chronic recurring intestinal obstruction, one in an insane person and one in a man who was not confined. There had been two acute intestinal obstructions in each one of these patients due to involvement of the sigmoid, and upon the third occurrence resection was done, and it was done in one stage and both patients recovered.

There were two cases of intussusception with involvement of the small intestine, the appendix and cecum in a gangrenous condition, in



which the patient was in sufficiently good condition that I felt resection in one stage was justified, and the patient recovered without any trouble. That removed part of the ascending colon also.

The other intussusception was in a child with an intussusception in the transverse colon, and at the head of the intussusception was a large sessile tumor in the colon. After unfolding the intussusception, it was thought wise to make a resection of a small portion of the colon through which the base of the tumor could be felt. The patient made a nice recovery in a one-stage operation.

There have been four malignancies in graded operations, in two stages, with two recoveries and two deaths, and one malignancy in a one stage, with the Rankin technique, with the breaking down of the suture line at the end of five or six days, and death from chronic peritonitis probably in ten days or two weeks afterward. So that in the nine cases there were three deaths.

I try to determine whether to do the operation in one or two stages not alone by the anatomic consideration which the doctor mentions, but also by the physical condition of my patient. I do not say that I would undertake a one stage for acute intestinal obstruction if the patient were in bad condition. If you can do a one-stage it is very much happier for the patient, cleaner and better in every way.

The main points that Dr. Hagan brought out, I think, are excellent, and certainly have been my guide.

The paper is now open for discussion.

**John Wathen, Louisville:** We have all listened to an excellent paper by Dr. Hagan, and also to Dr. Frank's experience, which was valuable. There are one or two points I would like to call attention to. He spoke of the X-ray diagnosis, but from the standpoint of the general practitioner, we should be on the lookout for anemia. Anemia is one of the outstanding symptoms in cancers of the cecum independent of X-ray diagnosis. Transfusion any time in the preparatory treatment is well spent.

In regard to the operative preparation of your patient, I think Rankin has clearly demonstrated the advantages of his serum.

There is one thing I am surprised he didn't mention and that is spinal anesthesia. I think it is one place where spinal anesthesia is especially valuable. These old people all have a high blood pressure and they stand spinal anesthesia remarkably well. It gives you wonderful freedom in your operative work.

In regard to the water supply, which Dr. Frank has mentioned, before the operation and afterward, I think it is excellent and very valuable, but I would add another preparation which we have added lately, and that is the

venoclysis of Dr. Hendon. Where we put the glucose and the water both in, we have an extra advantage, and we sustain these patients. They are old and are anemic. They are run down, and it is surprising what results you will get from the proper use of venoclysis.

In regard to the transverse colon, which the essayist and the discussers mentioned, I have adopted a very satisfactory method. In my opinion most of the colostomies done in the transverse colon are done wrong. You should lift up the omentum, catch this other side, and push it through the hole in this omentum. That is very essential. Then you will wall off all of the small intestines, and bring the colon right up through this opening.

In colostomies done in the transverse colon, in my early work, I made a mistake. I made my long proximal loop. My distal loop was a short one. Make a fairly short one in the transverse colon for your proximal loop, and let the other one remain fairly long, because it invariably tends to herniate.

I recently had two cases that herniated to the extent of eight inches, and I had to resect in those cases. Theoretically you would think that the proximal loop should be the long loop, but I want to call attention to the fact that it should be the short loop.

**F. P. Strickler, Louisville:** The points that I want to accentuate are the spinal anesthesia that Dr. Wathen mentioned and the vaccine which was first used in Vienna and Berlin, which undoubtedly does prepare a patient. It puts them in a much better position to take care of any slight leakage that might occur. Another point that I want to mention is the handling of the tumor itself.

In these cases that have secondary infection, it is very easy to squeeze infected material out of the tumor when you are lifting it out of the abdomen and breaking up the adhesions. I think a large percentage of the infection that occurs following these operations, occurs at that time, and the tumor should be dealt with very gently and carefully. I think that a lot of this infection occurs at this time causes the death of the patient where the suture line has held absolutely all right.

**George A. Hendon, Louisville:** Mr. President and Gentlemen: This is a matter of very considerable interest, but I think the question that seems to be implied by the title of the paper can be answered in a single sentence: If we operate for relief of acute obstruction, then a two stage operation is imperative.

The reason why I am making a point of that, is the fact that it is only under those circumstances that a diagnosis of carcinoma of the colon is made in about 90 per cent of the cases. I feel that is a very serious impeachment of our surgical knowledge, and, of course, I am just

as guilty and perhaps a little more so than anybody else: That we must wait for intestinal obstruction to occur before we are able to recognize the existence of cancer of the colon.

What is the reason for that? We know it is true but we hate to admit it. It is a pity it is true, but it is true, but why does such a state of affairs exist? For the simple reason that we exercise our efforts, our energies, and our talents in endeavoring to devise a way to take care of this condition after it has become developed. If we would use as much energy, and effort, and talent in endeavoring to establish a means of diagnosis before acute obstruction occurs, then we would be able to diagnose those cases in time to be of some benefit.

When I saw "we" I mean the profession in general. You know that the diagnosis of incipient cancer is the essential feature, and everything depends on the period of diagnosis. It does not make any difference where the cancer exists, and that everything that we say beyond an early diagnosis and everything that we do beyond that is purely a matter of adventure, speculation, poetry, romance, fresh air, and excitement.

It all, as I say, depends on the time at which the diagnosis is made as to our prospects of benefiting the patient in any way. Of course, we are bound to belong to the salvage corps. We can't resign from that position. That is what we are. These cases come to us when we must salvage what has been left, and it is up to us to endeavor to contrive some method to increase the comfort of the patient if we can't prolong his life.

In the matter of operation, the different methods of technique have been beautifully covered, but I want to bring to your attention one method of relieving tension above the site of the suture line. I was very much delighted that Dr. Frank brought that out because it is a matter of such great importance.

I think a great many of our suture lines, perhaps the majority of them, give way on account of the tension above. I have devised a very simple method of achieving relaxation which is much better than the methods now in general use. That is by making a very small opening in the bowel, threading a mushroom catheter on a stilet, and introducing it into the small opening in the bowel. When you withdraw your stilet, the mushroom spreads out and that holds the catheter in position. Then this, with the slight amount of tension the catheter itself will make, will draw your bowel up against the parietal peritoneum and adhesions will take place.

I want to call your attention to a condition that prevails in our Witzel's method, or the infolding, that will bring about serious results, which is leakage, and that is because you violate a very fundamental, mechanical principle. We know that whenever two substances of unequal

densities are in any way fastened together, if they undergo tension of any sort, the substance of least density will always yield, but if you attach two substances of equal densities, the yielding is less likely to occur.

In doing the infolding or Witzel method of implanting the catheter in the bowel, we sew the catheter to the intestinal wall. Of course, there is a great difference in the density, and then, whenever slight tension occurs, which does take place during peristalsis, the weaker one of those substances yields, which is the bowel, and you get your leakage.

In the method that I speak of, we do not sew the catheter, but, if it is necessary, we take a few folds or pleats in the bowel around the catheter to make it fit closer, and then, when the catheter is brought up with the peritoneum, the agglutination occurs.

Another point. I have been asked, in presenting this subject, How do you get rid of the catheter when you are through with it? We just draw that up and cut the stem off, and allow the head to fall into the intestinal canal, and it is passed out. (Applause.)

**Hart Hagan, Louisville:** (In closing) As there are three other papers to be presented before noon, I will not take additional time. But I do wish to take this opportunity to thank the several gentlemen who have discussed the paper, and I am glad that they brought out a number of important points that were not mentioned in the paper.

**Chlorine Metabolism in Pneumonia: Its Therapeutic Significance.**—Scholz points out that in many instances hypertension can be counteracted reducing the sodium chloride content of the food. This indicates that sodium chloride influences the circulation, and it has been found that its administration effects a stimulation of the vasomotor nerves. In pneumonia, the focus of infection absorbs large quantities of salt, and in the other organs of the body a sodium chloride deficiency develops. It is probable that this lack of sodium chloride is the cause of the vasomotor weakness. In order to stimulate the circulation during pneumonia, it is therefore advisable to supply the organism with sodium chloride. Care should be taken that the diet is not lacking in salt. In addition to this about 10 Gm. of sodium chloride should be given daily. However, because some patients have an aversion to salt it should be administered in the form of sodium chloride injections. The author recommends intravenous injection of 100 Gm. of a 25 per cent solution. In order to avoid tachycardia, the injection should be given slowly. In patients with a weak heart, however, sodium chloride injection is contraindicated. In patients with severe congestion in the pulmonary circulation it is advisable to precede the injection with a venesection.



## THE CAUSE OF DEATH IN INTES- TINAL OBSTRUCTION\*

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There are three factors which are responsible for the clinical picture and death of intestinal obstruction.

(1) Dilation of the bowel above the point of obstruction.

(2) Dysfunction of the gastro-intestinal tract secondary to the obstruction.

(3) Toxicity.

### DILATATION

The manifestations of dilatation are in indirect ratio to the suddenness with which the obstruction is produced. This is true of both high and low occlusion. If the closing process is very slow, or gradual, great dilatation and hypertrophy can be produced with practically no derangement in function until the occlusion is almost complete. Sudden occlusion, however, invariably manifests itself by severe pain. This pain is the result of dilatation or spasm. If the dilatation is great the bowel muscle will become atonic immediately, the pain will then be of short duration. Chemical changes in the musculature resulting from toxicity may also bring about atony after which the pain ceases. The intra-intestinal pressure above high obstruction has been measured by Owings and his co-workers (1) who found that during the second twenty-four hour period the pressure rose to ten or fifteen times normal. The higher the obstruction the higher and earlier the pressure rose. After the second day the pressure gradually falls so that at the time of death it is not increased.

Since the pressure falls and the pain ceases a day or more before death, and since dilatation is quite compatible with life as is shown in chronic conditions it is not conceivable that dilatation is directly responsible for exitus.

### DYSFUNCTION OF THE GASTRO INTESTINAL TRACT SECONDARY TO OBSTRUCTION

The intestinal tract below the obstruction is quite completely drained and then becomes quiescent. It is not distended. Its function ceases for the lack of stimulus from intestinal content.

Above the obstruction the intestine dilates, peristalsis first becomes hyperactive and then gradually ceases. Since there is so much emesis, normal digestion above the occlusion is not possible. Even without emesis enteric juice formation ceases because of accumulation. Without digestion absorption is not

possible. Even with digestion absorption would be practically nihil because the upper bowel is not fitted for absorption. It follows that starvation must occur. This starvation no doubt influences the clinical picture and possibly hastens death, but certainly can not be a primary factor since death occurs with a rapidity out of all proportion to that in other conditions in which starvation is an accepted factor.

### TOXICITY

That there is a toxin is not denied. It can be easily demonstrated experimentally by producing an obstruction and giving the liquid content of the bowel above the obstruction to another animal. The second animal dies with the identical clinical picture and laboratory findings the first had.

The specific source of this toxin is not known. Abnormal intestinal secretion, bacterial toxin, bacterial action on food, bacterial action on intestinal secretion and bowel wall have been suggested as a source of the toxin. Its presence and rapid formation, as early as three hours, are not disputed.

It has no name, curious enough, yet can be precipitated by alcohol from the intestinal content, but this precipitate is not pure toxin and hence can not be chemically analyzed.

This toxin appears in the bowel lumen above occlusion or in a closed loop of strangulated bowel. It also is produced in the bowel lumen of an animal after injection of the same toxin intravenously and this process can be repeated indefinitely. It has been suggested by Gurd (2) that the same toxin appears in the bowel after sudden occlusion of the portal vein.

The chemical properties of this toxin have been clearly set forth by many experimentalists (3). They are as follows: (1) It is ecotostabile. (2) It is not diffusable through certain membranes. (3) It is not destroyed by digestive secretions. (4) It is not destroyed by autolysis in the bowel, but disappears on standing. (5) It is destroyed by weak sulphuric acid. (6) It is precipitated by alcohol, albumin, and ammonium sulphate, but disappears on repeated precipitation. (7) It is soluble in water. (8) In general it is called a protease.

The physiological disturbances produced by this toxin are not so well defined, but there are quite a number that are agreed upon and it is to these that we must look for many of the symptoms and the cause of death.

The heart is stimulated to rapid action, the contractions weak and incomplete. Heart action fails some time after the respiratory mechanism. The larger vessels are dilated

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and this with weakened heart action results in cyanosis and falling blood pressure.

There is generalized acute degeneration of all tissues to a varying degree. The capillaries of the intestinal mucosa swell, their cells become vacuolated, the walls break resulting in petechia and ecchymosis. Occasionally there is ulceration of the mucosa. The liver and kidneys also suffer severely. The urine is scanty, concentrated, contains a few casts and some albumin. The liver is swollen and blotched by acute and fatty degeneration. The excretion of bile is suppressed and the manufacture of glycogen is almost nihil. The formation of urea is greatly augmented and chlorides are bound to the tissues. Local irritation in the bowel results in the accumulation of fluid and emesis. This loss of fluid together with the binding of water to the body tissue results in dehydration. Later the tissues lose their irritability and vomiting ceases.

The central nervous system is affected. Early there is mental excitation; late in the course of the disease there is suppression as is evidenced by somnolence, stupor and finally coma. The respiratory center is damped and finally paralyzed, the respirations shallow becoming slow and then ceasing. Here we have a definite and final cause of death.

#### REFERENCES

1. Owings, J. C., McIntosh, C. A., Stone, H. C., Weinberg, J. A. Intro-intestinal Pressure in High Obstruction. *Arch. of Surgery*, 17:507, Sept. '28.
2. Maury, J. W. D. Is Death in High Intestinal Obstruction Due to Absorption of Bile? (Foot note). *Ann. of Surgery*, 46:556, 1907.
3. Cooper, H. S. F. The Cause of Death in High Obstruction. *Arch. of Surgery*, 17:918- Dec. '28.

#### DISCUSSION

**Hart Hagan, Louisville:** There are just two or three points that I wish to stress. In the first place, our record, from a surgical standpoint, is not one in which we can take much pride, owing to the fact that over a long period of time, we have not succeeded in materially lowering our mortality. The mortality still remains almost as high as it was twenty-five or thirty years ago.

The answer to this situation can be given very briefly, in that it is due to the late diagnosis. So that our success must come from early diagnosis, and we hope for aid from the research in pathology and physiology in seeking the cause of this and the other factors in these cases so that we may thereby find some method of prolonging the relatively short period of safety we now have for diagnosis and treatment of these cases.

In looking over the literature on this subject,

we find, standing out rather prominently, the experimental work of two or three investigators. The initial work that we wish to refer to is the work of Whipple which he did several years ago, in which he definitely demonstrated that there is, as the essayist has pointed out, a toxin present in the strangulated loop of the bowel. Just the exact character of these toxins has never been definitely determined. This work has been amply confirmed by various investigators and by various methods.

But I think more recent work has given us more practical benefits. The work that I refer to is that of Hayden and Orr, of Kansas City, in which they have demonstrated that in the cases of acute obstruction, and also in certain other conditions, we have a definite lowering of the chlorides in the blood, and that the retention of chlorides is so marked, there is, at times, almost complete disappearance of the urinary chlorides.

So the practical help which we have derived from such work as this is that it has demonstrated (Hayden and Orr demonstrated it in animals and also in men), that the chlorides can be elevated by the introduction of sodium chloride. And so the giving of saline solution not only increases our chlorides, bringing our chlorides back to an approximate normal, but it also combats another factor, that of dehydration which has been produced in these patients by emesis and also, probably to a very large extent, by the accumulation of fluid in the bowel itself. So we are indebted to the pathologists and to the physiologists for the very great help derived from these several experimental procedures.

**Guy Aud, Louisville:** This is a very interesting paper but we must bear in mind that most of the cases that he has given us are end results. These are things that occur in patients that have gone to postmortem.

The thing that we are most interested in, from a surgical standpoint, is the extreme intoxication and dehydration of these patients at the time they come for operation. It has been very clearly demonstrated that the toxemia is greater the higher up in the bowel the obstruction occurs. Obstruction occurring in the small bowel presents extremely toxic conditions, whereas obstructions occurring in the lower bowel frequently present signs and symptoms of very little intoxication.

There is one thing that I want to speak about especially, and that is the loss of chlorides and calcium in these cases and of the necessity of replacing these before operation. I think we have been guilty lots of times of operating on these cases too quickly. As soon as they come into the hospital, and just as quickly as they can be prepared, they are sent to the operating room and are operated upon. It doesn't take



very long. It is only a matter of perhaps an hour, I would say, to have these patients given a quart of saline solution, and even more than this can be given before they are sent to the operating room and operated upon. I think this is a very important point: they should be given their chlorides before they are sent to the operating room. It takes a very short while to do it, and it is of tremendous importance. I am sure we have all lost cases because of the fact that we have waited until after they have been operated upon to begin the replacement of this chloride in their fluids.

These patients should be pushed after operation, of course, with fluids, with chloride, with calcium, and with glucose, all of which are extremely important, and to my mind of the very greatest importance if we are going to save them.

Spinal anesthesia in an intestinal obstruction acts particularly well. One of the great surgeons made the statement not very long ago, that no case of intestinal obstruction should be operated upon until spinal anesthesia has been given. Frequently the spinal anesthesia will clear up some of our cases in intestinal obstruction and they won't need operating on. In others it behaves beautifully, because it serves to help us empty out the toxic material that is in the bowel.

I recently had a case in which I used spinal anesthesia. The patient was extremely toxic and following release of the obstruction, the patient's bowels were completely emptied on the operating table, and the next morning you would hardly know that that patient had ever had any intestinal obstruction. The patient left the operating room with the abdomen completely flat.

I think these things are important, and I believe that if we will give more time to them, if we will give more time to preparing these patients before operating on them, we will save a great many more of them.

**Louis Frank, Louisville:** There are just one or two points I desire to make. First, I think the last speaker, and probably the previous one, has called attention to a very, very important point, and that is the loss of chlorides in the blood. However, we should distinguish between pure obstruction and strangulation and I think we have things a little mixed up in this discussion. We must visualize the causes of death in simple intestinal obstruction as one thing and the causes of death in strangulation with interference of the blood supply as quite a different process.

I think here we have two entirely different propositions. A patient with a simple obstruction of the intestine without strangulation may be carried over for a number of days, and it has been experimentally shown by White and

Fender in a recent article, that experimental animals may be kept alive over a long period of time by merely keeping up the water balance, which cannot be maintained, however, without the presence of electrolytes in the blood due to sodium. If this be done, then experimental animals may be kept alive over a very long period of time.

In simple obstruction without strangulation of the blood supply, there are no poisonous toxins formed. Experimentally they have taken out the content of the bowel above the point of simple obstruction, and reinjected it below maintaining the animals alive over a sufficient length of time to demonstrate this absolutely.

Where we have strangulation in addition to obstruction, we have an entirely different picture, and there toxins are formed. There are changes as a result of interference in the blood supply in the epithelial cells lining the intestinal tract that permit bacterial invasion, and we have various things happen which do not occur in simple obstruction.

Therefore, when we have interference with the blood supply, or dam the blood supply into the liver itself, we have poisons absorbed which are sufficient to destroy life. The point I would make is that in simple obstructions toxins are not formed and these patients may be kept alive.

The conclusions of White and Fender if I may be permitted to read them, were: In most cases there is a combination, so that if the patients live long enough, they vomit and dechlorinate. They secrete chlorides into the bowel, some of them without vomiting. Hence all of them should have salt solution so as to overcome, not the toxemia, but to overcome the dechlorination in the blood and to keep the patient from becoming dehydrated.

An important point brought out in the practical treatment of these cases by operation, and one which I had intended to mention in my discussion of Dr. Hagan's paper, is the method of anesthesia by injection into the spine. I think it should always be used in every case of intestinal obstruction and in the type of operation which Dr. Hagan mentioned unless especially contraindicated.

We now have in the hospital three of these patients with colonic resections. Another one has just gone out. All of the operations were done under spinal anesthesia. The facility with which the operation is carried out is remarkable, and the condition of the patient afterward is very, very gratifying to the surgeon. Here your general anesthetic, particularly ether, or even any kind of general inhalation anesthetic, becomes a source of very marked danger, and unquestionably has been the cause of a good many deaths we have had, not only from its

effect on the kidney but from aspiration pneumonia.

**G. A. Hendon**, Louisville: I just want to say that I have an answer for every proposition that was presented by the essayist, and it is in the one word, Venoclysis. You can put anything into the blood stream in any amount that you want to. You can supply the patient with all the chlorides he needs. There is no use for anybody to ever die of starvation. There is no use for anybody to even die of dehydration. There is no use for anybody to ever die of deficiency of calcium, or chlorides.

We must learn that the administration of fluids by proctoclysis and by hypodermoclysis is just as much a back number as riding an ox-wagon, or driving a horse and buggy, that it is unscientific, that it is imperfect, and that it does not fulfill its purpose.

By venoclysis you can give the patient as much fluid as he must have and you can give him all the nutrition that he requires.

The Doctor made one very significant statement, and that was that this toxin is soluble by water. Therefore the solution can be carried to a degree of innocuous attenuation. Any toxin that is soluble can be dissolved until it becomes absolutely innocuous.

Now then, when I say, use glucose, I don't mean 50 grams of glucose. Woodyatt showed, years ago, that the individual under normal circumstances can take care of one gram of glucose for every three pounds of body weight, every hour, and when you give people 50 grams of glucose you are not treating them. You are teasing them.

In the kind of cases reported by the essayist we use as much as 2 gallons of fluid in twenty-four hours and we give them as much as 2 pounds of glucose in the twenty-four hours. It is the most remarkable phenomena I have ever witnessed in the practice of medicine.

I also want to say that the deficiency of calcium is a very important consideration in the death of these patients which the Doctor mentioned. We find that when the calcium gets down to 7, our patients do poorly. Then when we raise that calcium up to 12, they begin to improve, and it is no trick at all to increase it to any amount that you want to.

We give 15 grains of calcium to each 1000 c. c. of our glucose solution or 60 grains per day. We don't know whether that is right or not. We are working it from a purely arbitrary basis until we get further information, but by that means we have been able to raise our calcium up to 12. That means 12 milligrams to each 100 c. c. of blood, and in every one of those cases, the patient immediately began to improve. We know that by the administration of large quantities of glucose the liver is left free to exercise itself purely as a fighting

machine. We know that dogs can have their livers amputated, and as long as sufficient glucose is fed to them, the dogs will survive.

We can save two out of three of all the hopeless cases of peritonitis, just by this simple means. Before we begin an operation in any serious surgical condition, we hook up the venoclysis, and there is no shock absorber in the world like glucose. It takes up all the shock while you are working. We have kept people alive two weeks without any oral feeding whatever, and it is perfectly easy, and perfectly simple, and remarkably effective. It should always be employed in serious surgical operations before you begin. Let it be working while you are operating, and let it follow the patient on to convalescence. You need not feed the patient for a week or two weeks if you don't want to. Usually inside of a week they can take food in a normal manner.

**G. Y. Graves**, Bowling Green: The paper, if I understand it correctly, is on the cause of intestinal obstruction, and I think that we all agree that in the lower obstruction the cause given by Dr. Miller is quite true, but I have never been able to convince myself that there is a toxin liberated in the upper intestine which is the cause of death. I think it is purely due to the loss of chlorides and fluids.

If I understand it right, intestinal obstruction carries the highest mortality rate when it is just below the pancreatic duct. I think it is quite foolish to assume that in case of obstruction, this part of the intestine would not take the function that it normally possesses: namely secretion instead of absorption. We assume that there is a toxin absorbed. Why is it that an intestinal obstruction lower down, say in the lower ileum or cecum, is not as rapidly fatal as high obstruction. Because in lower obstructions we have the absorptive area of the intestines which would absorb more of the toxin.

Another point that I would like to emphasize, is the determination of blood chlorides in the diagnosis of the intestinal obstruction. It is true that it is useful in later stages, but if you wait until your chlorides are lowered as shown in the blood chloride examination, you are going to wait until your patients are almost dead, and I think as a test of intestinal obstruction it should be eliminated entirely.

**F. P. Strickler**, Louisville: I want to call attention to the work of Dr. Alvarez who is now associated with the Mayo Clinic. In my opinion. Dr. Alvarez has called attention to one of the most important diagnostic points in the diagnosis of intestinal obstruction, and I don't think any discussion of intestinal obstruction would be complete without mentioning it.

Dr. Alvarez has called attention to the use of the stethoscope in the diagnosis of intestinal obstruction, and if you use it you will diagnose



your cases early, and the better chance they will have to get well. Dr. Alvarez has called attention to the point that following acute pain in the abdomen where you suspect intestinal obstruction, if you will go over that abdomen with the stethoscope, you will find exaggerated intestinal peristalsis above the obstruction and a dead bowel below it. (no peristalsis).

I think if you will bear this in mind, you will be able to diagnose intestinal obstruction and get your patients operated on early, to get them under treatment of venoclysis early so that more of your cases of intestinal obstruction will get well.

A case that has had a mechanical intestinal obstruction for several weeks time, certainly hasn't much chance, I don't care what you do to it. The patient, by that time, has absorbed so much toxin that he is going to die.

I want to endorse everything that Dr. Hendon has said about venoclysis. I have seen him use it and I have used it myself, and I certainly want to swear by it. I had one case that we kept under venoclysis continuously, using both arms twice and both legs twice. During that three weeks' time, I gave the patient 57,000 c. c. of 10 per cent glucose solution, and at no time did the sugar spill over into the blood stream much above normal. I had it spill over in the urine beyond a faint trace. That patient had 12.5 pounds of sugar in three weeks and she got well.

**S. C. Smith, Ashland:** I think we are more interested in saving the lives of our patients than we are in the cause of death, and I have a diagnostic method which was demonstrated to me clearly, that I think is not only beneficial in arriving at a diagnosis, but also will give you a fairly accurate location of your obstruction, and that is by the simple method of x-ray. That is true in acute obstruction as well as in chronic obstruction.

I have seen it demonstrated successfully three times, and the operation showed that the location of the obstruction was fairly accurate. You will find the intestine ballooned up above your obstruction and collapsed below. This ballooning will show clearly on your film and will give you a fairly accurate idea as to where your obstruction is located.

**A. J. Miller, (in closing):** I wish to thank these gentlemen who have so kindly discussed this subject. I feel that it is my duty to add a few remarks in regard to the presence of toxin. I have done no experimental work on this subject myself, and must throw the burden of proof upon the shoulders of those who have. I can refer you to Morray, of Sweden, Dregsted and his assistants, Henry S. Cooper, of New York, and others, who stated rather flat-footedly that there is a toxin liberated as a result of intestinal obstruction.

Their evidence as to this statement is,

briefly; that if the liquid material, and all that is needed to be done with the material above the obstructed area is to strain it of the coarser particles, be put into a second animal, the second animal dies with exactly, and I say "exactly" because I believe those laboratory signs and symptoms have been gone over very carefully—the same condition the previous animal had. The intestinal content of this second animal, which has no obstruction, can be recovered by the same method introduced into a third animal which dies in the same way as the second, and this process can be carried on. It has been carried on for as many as twenty animals, and apparently can go on indefinitely.

A second reason for that statement is this: If this liquid material is taken out of the bowel, mixed with 95 per cent alcohol, a very fine, white crystalline precipitate will result. If a few milligrams of this substance, dissolved in water—is injected into the vein of a laboratory animal he dies with the same clinical picture and the same laboratory findings as the one in which the obstruction was produced.

That is the evidence that is in the literature.

#### LOCAL AND REGIONAL ANAESTHESIA IN THE REDUCTION OF FRACTURES\*

JOHN L. BATE, M. D.

Louisville.

We have been able to find only a few references to the use of local anesthesia in the reduction of fractures in the literature. These writers give credit to Conway (1), of New York, for first using this method in 1895. Although he reported only successes, the method was not reported again in this country until relatively recently. (2) Reclus (3) of Paris, published experiences with the method in 1903; Lerda (4) of Turin in 1907. Quenu (5) of Paris in 1908; Dollinger (6) of Budapest and Braun (7) of Zwickau in 1913 and Boehler (8) of Vienna in 1929.

Reclus relates one case of fracture of the tibia in which he injected cocaine solution at the point of fracture in order to facilitate the transportation of the patient. He also reported several cases of dislocated joints successfully anaesthetized in this way.

There are no other reports found by us on this subject in the literature. The first comprehensive publications were made in 1907 and 1908 by Lerda and Quenu, the former reporting 30 and the latter 25 fractures in different parts of the body which were painlessly reduced after injection of cocaine. They

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used 0.5% cocaine solution, one added adrenalin and one omitted it.

Braun reported 23 cases using novocaine and adrenalin with only one failure. No bad results have been reported from the use of local anaesthesia in fractures and dislocations; everything points to its surprising advantages. The chief remote danger in using the local injections is the possibility of infection. Such danger is improbable. The point of entrance of the needle should never be placed where there is an abrasion of the skin, however, nor where it is crushed, thinned or devitalized in any way. In such cases, the local injections are best supplanted by brachial plexus anaesthesia for the upper extremity or spinal anaesthesia for the lower extremity.

As every recent fracture is painful, and the pain exaggerated by the least movement, the patient contracts his muscles reflexly in order to avoid the pain, and, therefore, makes the displacements worse. The muscular spasm becomes worse when traction is exerted on the extremity. In recent fractures, local analgesia, and in occasional cases regional anaesthesia are especially suitable for overcoming the muscle spasm.

As Boehler has used local analgesia in 3000 cases without the slightest injury we will follow his description of the method. This method has given excellent results in two fracture cases under our care, one being a fracture of both malleoli at the ankle with some displacement, and the other a Colles fracture.

"In a recent fracture—a hematoma is present which penetrates all the tissues in the vicinity of the broken fragments. It is sufficient to introduce the needle down to the broken fragments and to inject the solution, which is at once diffused in the hematoma. The anaesthesia takes place immediately and as a result the muscular relaxation. The greatest obstacle to the reduction of the fracture is now eliminated.

The following items are needed:

1. 2 sterile 10 c.c. syringes.
2. 2 short and 2 long and slender needles.
3. 2 sterile tissue forceps.
4. 30-50 c. c. of 2% novocaine solution.
5. Tincture of iodine.
6. A few sterile swabs.

It goes without saying that everything must be sterile; the needles should be applied only by means of the tissue forceps and not be touched with the fingers. In order not to be delayed, we should always have two syringes ready. After we determine the site of the fracture, judging by the tender point, we paint the skin with tincture of iodine and then introduce the needle until

the bone is felt. We now inject 4 to 5 c. c. of solution and take off the syringe. If a red colored solution escapes from the needle, we know that we are in the hematoma and now can inject 15 to 20 c. c. of the solution with the same needle. If the solution comes out clear, we must try again, until the proper place is found. If the bone is broken in two places or if more than one bone is broken, we inject the solution into the site of every fracture. We can use 50 to 60 c. c. of a 2% novocaine solution without any danger. In those fractures where the displacement is minimal and where the hematoma is small, we are occasionally forced to inject the whole circumference of the bone."

After injecting the fracture the patient should be watched carefully, because, with the pain gone, he might make a sudden movement and convert a simple fracture into a compound one.

If the fracture is old enough for the hematoma to have started organizing, either the whole circumference of the bone must be injected or brachial plexus anaesthesia for the arm or spinal anaesthesia for the lower extremity may be used.

We will not describe the technique or complications of spinal anaesthesia because there has been much written on it since more members of the profession have taken it up. We have used it successfully in approximately 50 fracture, gynecological and urological cases with good results and no serious complications, even though we were using it six years ago when the use of ephedrine to maintain the blood pressure was not known. This method is especially valuable in injuries of the pelvis with a torn urethra and fractures of the hip in the aged.

The most popular method of brachial plexus anaesthesia is that devised by Kulenkampff (9). Again we use Boehler's description of technique:

"The patient either lies on the table or sits up, with his head turned slightly to the unaffected side. The pulsating subclavian artery is now located in the supraclavicular fossa and displaced medialwards; immediately lateral to the artery lies the plexus. A mark is now made in the skin over the clavicle with the finger nail and the area is painted with tincture of iodine. The patient is directed to say 'now' immediately, if he feels a sensation similar to an electric shock in his arm or in his fingers after the needle is introduced. The needle, which should be only 4-5 cm. long, is introduced obliquely toward the midline. If there is a bony resistance, it is the first rib, which indicates that we are behind the plexus. In this case, we must pull the needle slightly forward and



make new attempts to find the plexus, either medially or laterally. In thin individuals, the plexus is found 1 or 2 cm. under the skin. If the nerves of the plexus have been found, and if there is no blood coming out of the needle, we inject 25 c.c. of a 2% novocaine solution. The motor and sensory paralysis sometimes takes place at once and sometimes only after 10 to 15 minutes. It usually lasts from 1 to 3 hours."

Boehler reported one haemothorax which resulted from puncturing the subclavian artery. In four cases there was a complete paralysis of the whole arm, which only recovered after one or two months. These patients had long lasting operations where a tourniquet was used. In 100 cases where no tourniquet was used there were no harmful after effects.

Kulenkampff (9) reports that in 100 cases anaesthetised by 8 different surgeons, in 4 cases it was found impossible to cause paresis, and, therefore, the injections were ineffective.

Haertel and Keppler (10) warn against bilateral brachial plexus blocking, since it is possible that paralysis of the phrenic nerves may be present and last a few hours and thus throw too much strain on the other muscles of respiration.

Capelle (11) saw a pneumothorax with emphysema of the skin which caused the death of the patient.

There is always reason to fear puncture of the apex of the lung. Injury to the pleura may best be avoided by passing the needle down to the first rib a little to the outer side of the middle of the clavicle.

I have had no experience with the use of popliteal nerve block, preferring spinal anaesthesia or local infiltration in those cases where blocking of the popliteal nerve could be used.

In conclusion, local and regional anaesthesia offer many advantages in the reduction of fractures; in the aged and patients with severe cardiac and nephritic disease; in the opportunity it gives to make repeated efforts at reduction where necessary; in transporting patients from the operating room to the fluoroscopic room and in the general cooperation which a conscious patient can give.

## REFERENCES

1. Conway, J. R., Jr., Cocaine as an Anaesthetic in Fractures and Dislocations. *N. Y. M. J.*, 42; 632-1885.
2. Mora, J. M. and Willis, D. A. Reduction of Simple Fractures of the Extremities under Local Anaesthesia. *Amer. Jour. of Surg.*, No. 5, May, 1913, Vol. VIII, 1062-1064.
- Cohen, Ira. Quoted by Highsmith, J. D., *Southern Medical Journal*, Vol. XXIII, No. 9, Sept. 1930, 807-813.
- Forrester, C. R. G. Quoted by Highsmith, J. D., *Ibid.*
3. Reclus, L'Anesthesie localisee par la cocaine. *Paris, Masson & Cie.*, 1903, 266.
4. Lerda, G. Die Praktische anwendung der lokal Anesthesie bei Frakturen. *Zentralbl. f. Chir.*, 34; 1417, 1907.
5. Quenu. De L'Anaesthesie locale par la cocaine dans la reduction des fractures. *Bull. et. mem. Soc. de Chir. de Paris*, 34; 976, 1908.
6. Dollinger, B. Ueber die Reposition der Bruchenden in Lokalanesthesie. *Zentralbl. f. Chir.*, 40; 764, 1913.
7. Braun, H. Die Anwendung der Lokal Anaesthesie z. Reposition subkutaner Frakturen u. Luxationen. *Deutsche med. Wchnschr.* 39; 17, 1913.
8. Boehler, L. Treatment of Fractures, Wilhelm Maudrick, Wien, 1929, 15-19. Steinberg.
9. Kulenkampff. Quoted by Braun, H., *Local Anaesthesia*, Lea & Febiger, 1924, 359.
10. Haertel and Keppler. Quoted by Braun, H., *ibid.*, 364.
11. Capelle. Quoted by Braun, H., *ibid.* 364.

## DISCUSSION

**E. S. Allen, Louisville:** I believe that I could discuss this very interesting paper of Dr Bate's better if I were reporting the case on which I used local anaesthesia infiltration. It has been my custom, however, in fractures of the lower limb, especially in elderly people, to attempt a reduction of the fracture, with whatever appliance is necessary, with the spinal anaesthesia. Very frequently we have to keep these patients under an anaesthetic for a half hour, or for an hour, to apply a dressing, make x-ray pictures, and so forth, and to an elderly person that might be disastrous.

This spring I had a patient, an elderly man 74 years of age, with a fracture of the upper third of the femur. I brought him to the hospital. He was an emaciated man with a low blood pressure. He looked exhausted, somewhat in a state of shock, and I felt, with him, even spinal anaesthesia would be inadvisable. So under the method described by Dr. Bate, I used about 40 c. c. of a 1 per cent solution of novocain, injecting it into the end of the fracture.

This patient had muscular spasms, and he had quite a deformity at the site of the fracture. He was suffering a great deal of pain although he had a hypodermic of morphin. He wouldn't allow us to touch his foot or to even touch the bed. About five minutes after the introduction of the local anaesthesia at the point of fracture, he experienced complete relief of pain. We took him to the x-ray room and made a picture,

reducing the fracture under fluoroscope. The approximation was satisfactory and we placed him in a plaster cast.

He was completely relieved of pain for several hours. After the plaster cast was applied he suffered very little inconvenience.

Having had such success with this case, I have used it on several cases since: In one other case of fracture of the femur, in a case of fracture of the tibia, and also in three cases of fracture of the arm.

I feel that with a patient, especially if we can block out the nerve trunks, we can do almost anything with a local anaesthesia. I have done two amputations of the arm under local anaesthesia. I have assisted Dr. Hagan in another case of amputation of an arm, with osteomyelitis.

This anaesthetic acted perfectly. This man had had a gun shot wound of the hand, and also of the face and mouth, in which it was inadvisable to attempt any general anaesthetic.

I feel that under local anaesthesia you can do a great many things in surgery and save the patient a great deal of discomfort from a general anaesthetic.

**F. P. Strickler, Louisville:** I don't know that there is anything that I can add to this paper. There hasn't been a great amount of work done on it. Dr. Bate has covered the literature thoroughly. I think he has quoted every article that has been written on it.

I have had some experience with this subject, although my experience has not been as great as some of the other men's. I have used the brachial plexus block. I have used injection of novocain into the hematoma at the site of the fracture. I have also used spinal anaesthesia.

There has been a lot said about spinal anaesthesia this morning. I imagine that practically every one thinks it is a panacea where any anaesthesia is to be given, but there is one point that I want to mention, and that is, in giving spinal anaesthesia, it is not a good idea to give it to the patient with myocarditis. If you do, you may get into trouble. I know of one or two deaths that occurred where given to patients with marked myocarditis.

I think that Dr. Bate has covered the literature very thoroughly, and I think that he has given an excellent paper. I want to congratulate him on presenting this subject to the society, because, as far as I know, this is the first paper that has ever been read before this society on this subject.

**Neville Garrett, Norwood, O.:** I have had no personal experience with this method of local anaesthesia, but I have seen it tried twice by experts and in neither instance was it very satisfactory, but I am satisfied that they do get good results.

I saw Dr. Ralph Carothers try it at the Gen-

eral Hospital in Cincinnati, on a man probably 60 years old with a fracture of the elbow, and he wasn't able to reduce the fracture. Both Drs. Carothers were there, and they went on to relate their experience, they having used it in a great many cases with no trouble, but in this man they were not able to reduce the fracture. He was taken out of the amphitheatre, and in about a half hour, some gentleman came back and I believe he said the fracture had been reduced, but they didn't do it before the audience.

I saw Dr. Lorenz Bohler, of Vienna, try the same method on a child, with a Colles' fracture, but the child was so afraid he never let him reduce the fracture.

I am satisfied, from what I have heard of it, that it is satisfactory in many instances, but the only two that I have seen it tried on didn't work very well.

It seems to me that one of the chief dangers of this method is the danger of infection. We have heard a great deal about the danger of infection in compound fractures and you are practically getting a compound fracture if you make this injection, but that danger may be largely removed by proper asepsis.

**Barnett Owen, Louisville:** I first would like to congratulate Dr. Bate on his comprehensive presentation. This is an admirable paper, and I am sure it is going to be productive of a great deal of good.

We all realize the importance of obtaining muscular relaxation in the reduction of fractures. That, to my mind, is the greatest advantage of local anaesthesia. There is another great advantage in spinal anaesthesia for the aged with fractures of the lower extremities. There are some cases, of course, that should not have spinal anaesthesia. You must select the cases carefully, just as you would in any other condition.

It has been my experience that children do not stand local anaesthesia for reduction of fractures and dislocations very well. They are nervous, and they are not co-operative, and they don't understand. I prefer to give a general anaesthesia as routine.

I believe we have learned a great deal from Dr. Lorenz Bohler who has been in this country recently. I had the good fortune to hear him this summer at the American Orthopedic Association when he presented his paper with moving pictures, reporting three thousand cases that he had done in Austria, as he has charge of all the fractures in the industrial plants in Austria. He is appointed and paid by the government for that supervision.

The next thing that impressed me is the fact that the doctors in Austria, and in Germany, and in some of the other foreign countries have a great deal more control of their patients than we do here in the United States. It is only



necessary to tell the patient what has to be done by him and there is no argument about it. Those of us who have been practicing medicine for a good many years in America realize that this is quite a factor in this country, that a great deal must be left to the discretion of the patient.

**John T. Bate**, (in closing): I just want to say a word about the use of this method of local anaesthesia in children. It is much more difficult in children than in adults, because the periosteum is more tightly adherent to the bone and doesn't strip up well, and, therefore, is not exposed to the novocaine unless the circumference of the bone is also injected. As we know, most of the sensation of pain caused by injury to a bone comes from the periosteum. However, Dr. Bohler certainly is the man who would know how to use this method, and if it has failed on a child in his hands, I think that we can safely say that sometimes it does fail. I have missed seeing any failures in the work I have observed others do or in the very small amount I have done myself.

I agree with everything else that has been said and wish to thank everybody for their discussion.

#### WHAT SURGERY OFFERS THE CONSUMPTIVE\*

L. WALLACE FRANK, M. D.

Louisville.

and

J. P. BOULWARE, M. D.

Louisville.

The sheet anchor in the treatment of pulmonary tuberculosis is rest, food and sunshine. This is the basis of all treatment and no new innovation will in our opinion ever replace these three factors. As our knowledge of pulmonary phthisis has developed and the modern Sanatorium come into being the idea of rest has widened and now not only embraces physical rest in bed but has been made to include rest of the individual lung. This is accomplished by the use of shot bags, slings and other methods as were so well outlined by our confrere Dr. O. O. Miller in a recent paper before the Jefferson County Medical Society. Further rest of the lung may be accomplished by the introduction of air or nitrogen into the pleural cavity, thereby producing collapse of that lung. Such method of treatment was first introduced by Forlanini of Pavia in 1894, and our own J. B. Murphy working independantly suggested the same idea in 1898.

Advances in the surgical treatment of pulmonary tuberculosis are associated with the

names of Sauerbrauch, Brauer, Wilms, Archibald, Goetze, Willie Felix, Hedebloom, Steurtz and especially with John Alexander whose monograph on this subject is one of the outstanding contributions in the literature of this disease.

Our experience in the surgical treatment of pulmonary tuberculosis dates from August 1926 and in this presentation we wish to discuss only two methods of treatment, namely, Phrenicectomy or Phrenic Exeresis and Thoracoplasty. By Phrenicectomy we mean the excision or avulsion of the Phrenic nerve, and by Thoracoplasty is meant the collapse of one side of the chest by the subperiosteal removal of its supporting bony structure. In addition to these procedures there are other surgical methods which in the hands of some individuals have given most brilliant results. We now refer to intra-pleural pneumolysis with which we personally have had no experience. However, in our Clinic at Waverly Hills Sanatorium, Louisville, Ky., this method has been recently introduced and used very successfully in several cases. The operation consists in the intra-pleural division of adhesive bands between the lung and the parietal pleura which prevent collapse of the lung when pneumothorax is employed. The chief exponent of this method of treatment is Matson of Portland (Oregon) and his last report embracing 1440 cases reveals its great value. The other method to which we refer is Apicolysis and this consists in the collapse of cavities in the apex of the lung. The obliteration of such cavities may be accomplished by pressure due to the introduction of muscle into the bony thoracic cage after the method of Alexander or by the compression of the lung apex by the use of some foreign substance such as gauze tampons, sea sponges, paraffine, etc.

As heretofore mentioned we wish to present only two phases of the surgical treatment of pulmonary tuberculosis, namely, Phrenicectomy and Thoracoplasty. Before entering into a discussion of the value of these procedures we would like to emphasize the fact that every individual who undertakes the surgical care of tuberculous patients should be associated with one cognizant of the medical management of pulmonary phthisis and who is familiar with the pathological processes present. Furthermore, the association of a Roentgenologist well grounded in the varied aspects of diseases of the lung and especially that of tuberculosis is most desirable. At this point we wish to state that no operation of itself is curative but rather it should be considered as an important adjunct in the treatment of the existing pathology. The resistance of the patient, which under former conditions was such that

\*Read before the Surgical Section of the Kentucky State Medical Association at Bowling Green, Sept. 15-18, 1930.

the disease could not be successfully combated, may under the circumstances created by surgical intervention so be raised as to overcome or heal the tuberculous lesion. In this connection Yates of Detroit advocates the use of the transfusion of whole blood. He emphasizes the fact that the introduction of whole blood is not only valuable in cases of hemorrhage but that it raises the resistance of the individual to the disease.

**Phrenicectomy:** During the past 4 years we have performed phrenicectomy or avulsion of the phrenic nerve on more than 225 patients. We do not wish to present a detailed study of these at this time but will give you a brief summary of the results. Last year in conjunction with Dr. O. O. Miller we presented a detailed study of 100 cases before the Southern Surgical Association at Atlanta. Since then we believe our results have been better due to a more careful search for accessory nerves and to section of the nerve to the Subclavius muscle which in many instances is the chief enervation of the diaphragm. At this point may we digress long enough to say that in none of the text books of Anatomy are accessory phrenic nerves mentioned.

A few of our earlier cases we have re-operated and found an accessory Phrenic nerve as large as the nerve originally removed. Following the first operation no paralysis of the diaphragm occurred, yet when the accessory was sectioned cessation of diaphragmatic movement with later rise of the diaphragm occurred. In only one case re-operation failed to give the desired result. This patient, a girl of 25, was first operated on July 23, 1928 and then again on July 1, 1930. At the second operation we found the stump of the Phrenic nerve. The brachial plexus was exposed and a small accessory Phrenic nerve found and three cm. resected. The nerve to the subclavius could not be identified at either operation. Roentgenograms show no change in the chest picture and fluoroscopic studies made two months after the second operation show no fixation of the diaphragm. In a recent review of 500 cases by O'Brien reported in the Journal of the American Medical Association of August 30, 1930 a similar case is reported. Fortunately, such occurrences are rare and can almost be disregarded. Our personal belief is that in such rare instances the enervation of the diaphragm comes through the lower intercostal nerves.

In summarizing the effect of Phrenicectomy we would divide the subject into several headings:

(1) Cough: Upon this the effect is varied. In some it may cease, certainly in all it is easier.

(2) Sputum: In some the quantity of expectoration remains the same, but the sputum comes up with less exertion. In many it is decreased and in others it disappears. Some sputa persistently positive for T. B. bacilli become negative.

(3) Hemorrhage: In our entire series we have had but one patient in whom hemorrhage which had not previously occurred followed operation. We did not attribute this to the operation itself but thought that as it occurred within the first week following operation it might have been due to the collapse of an existing cavity or to the natural progress of the disease. We have operated three cases on account of hemorrhage. One ceased except for the fact that after exceedingly hard coughing there has been some streaks of blood in the sputum. In one other case there was no hemorrhage for five days then death occurred following a massive hemoptysis.

(4) Cavity: In most cases the cavity diminished in size following Phrenicectomy. This has been especially noticeable when the cavity was located below the second rib and in many patients the cavity has entirely disappeared.

(5) General Well Being: All patients felt better and were apparently improved by operation.

We have performed bilateral Phrenicectomy in one case and in another have crushed the nerve on one side after the nerve on the other side had been removed. Both of these patients had temporary shortness of breath which gradually cleared up. We might mention that one of these patients was operated on account of hemorrhage with good results. In several cases we have used Phrenicectomy on one side in association with Pneumothorax on the other side. In these no untoward symptoms developed and at the present time progress is very satisfactory.

The Indications for Phrenicectomy as we now see them are the same as outlined in our paper of December 1929. They are:

(1) As a preliminary procedure in artificial pneumothorax, especially when cavities are moderately thick-walled, and where the pneumothorax will be carried indefinitely.

(2) As a preliminary procedure to artificial pneumothorax when the cavities are thin-walled and situated in the infraclavicular region. Phrenicectomy under these circumstances may result in a complete closure of cavities and pneumothorax be unnecessary.

(3) In moderately advanced pulmonary tuberculosis that has shown no improvement following three months' routine bed rest.

(4) In patients clinically well who have a unilateral lesion and a persistently positive



sputum, in the absence of definite cavitation.

(5) In all lower lobe tuberculous lesions, or in those cases where the pathology is predominately basal.

(6) As a preliminary operation to Thoracoplasty.

(7) In those individuals, who, by reason of temperament or lack of normal intelligence or self control, are unable to bring themselves to undergo routine Sanatorium care, and prolonged fight and self denial necessary for recovery, Phrenicectomy is helpful.

(8) In acute and progressive pulmonary tuberculosis, Phrenicectomy may slow the progress and initiate improvement. The negro falls within the latter two indications. The mortality rate for negroes at Waverly Hills Sanatorium fluctuates between 43% and 61%. Artificial pneumothorax has been unsuccessful in the negro there. With a reasonable selection of patients Phrenicectomy offers possibilities for the negro. Cases must be selected in the early stages of the disease if recovery is to be expected. Basal tuberculosis occurs frequently in the negro and in these Phrenicectomy is particularly indicated.

(9) As an adjuvant in artificial pneumothorax where cavities remain uncollapsed in the presence of a satisfactory pneumothorax, the relief of tension incident to Phrenicectomy may bring about closure. This has happened in several patients.

(10) In patients with positive sputa, despite good collapse and where no cavities are observable in the collapsed lung.

(11) In those cases where pneumothorax must be kept up indefinitely, Phrenicectomy adds a margin of safety and lessens the number of refills.

(12) As a final procedure where one is considering discontinuing an artificial pneumothorax and permitting the lung to re-expand, especially if there has been cavitation.

(13) Where pneumothorax is being lost due to adhesions.

(14) In artificial pneumothorax complicated by a flexible mediastinum, a successful Phrenicectomy tends to increase collapse without resorting to high pressures, thus minimizing the tendency to displacement of the mediastinum.

(15) As a supplemental procedure in most cases of artificial pneumothorax.

**Thoracoplasty:** This operation so far as the treatment of tuberculosis is concerned is of relatively recent origin. It had its beginning in Europe in 1908 where it was first used in Germany, Switzerland and the Scandinavian countries. The English speaking races were relatively slow to take up so radical a procedure and up to 1914 only three cases had been treated by this operation on the

North American continent. Archibald states that three years ago there were possibly 300 to 400 cases that had been treated by Thoracoplasty on this continent; and we believe that he himself had contributed a large number of these. Since then the operation has become more popular and the number actually performed is probably in excess of 1000.

By Thoracoplasty in connection with the treatment of tuberculosis, we mean the posterior extra-pleural, sub-periosteal resection of the upper ten or eleven ribs. This is a formidable operation and the indications for its employment are most definite. In a word it may be said that unilateral involvement or, if the other lung is involved a quiescent lesion is the most essential. Furthermore, the individual must have tuberculosis of the productive type, and by this we mean that there is a tendency to fibrosis or scar formation. Such a reaction on the part of the patient indicates that individuals resistance to the disease. Those in whom the exudative type of tuberculosis is present, which is the common type seen in the negro, are not suitable for Thoracoplasty. Furthermore, one for whom this operation is contemplated should be free of temperature and have a relatively normal pulse. Archibald believes that a patient who has been under treatment for one or two years, who shows fibrosis and who has reached the stage where Sanatorium treatment can accomplish nothing should be considered as a candidate for Thoracoplasty provided there are no contraindications.

In the past three years we have performed Thoracoplasty upon about ten patients. This is a small number from which to draw conclusions and yet our viewpoint, after a careful study of our cases, coincides with the opinion of others following such endeavor. We have lost one case and this was due to an error in judgment. This patient, a young man of 26 or 27, was operated about eight months ago. On the table his pulse remained 90 to 100 per minute and being led into the belief that this would continue after operation, we removed eleven ribs at one time. This patient developed what is commonly referred to in this type of surgery as "mediastinal flutter" or "shock" and died within twenty-four hours. Since then we have learned better and will not under any circumstances do a complete collapse of the chest at one operation. Another patient who had advanced tuberculosis in one lung and some involvement in the other lung, was operated and developed a spread or possibly activation of the other side and in her case, the outlook is not so good. Among our earlier cases two may be considered practically cured. At this point may I digress a moment and give

you the history of one of these cases. A young man aged about 25, had been confined to Waverly Hills Sanatorium for four years. He was our first Phrenicectomy and also our first Thoracoplasty. The disease had reached a standstill and as he was a good surgical risk, operation was thought advisable in his case. Since operation, two years ago, this man has been working in both day and night shifts and has yet to show any evidence of a return of his former trouble. Another case has returned to her full duties as a house wife, following surgery after four years of Sanatorium regime. Two relatively recent ones give every indication of making complete recoveries.

Our series is so small that in order to give you an idea as to the results of this operation I would like to quote the statistics of Lambert and Berry. They report 64 cases with an operative mortality of 12% and a late death rate of 11%. Of the 64 cases 36% are considered cured and 25% markedly improved. Archibald in his last statistics has divided his cases as follows: good chronics, doubtful cases and unfavorable cases. Of the first group he has had 47 upon whom he has done Thoracoplasty and of this number there were two operative deaths, one of which was due to a single stage operation. The operative mortality was 4.3%. He considered 66% practically cured and another 13% markedly improved. Of the doubtful cases Archibald lists 71 among which the operative mortality was 4.2%. Of this number 38% were considered practically cured and 24% greatly improved. In other words, of the cases suitable for Thoracoplasty, practically 50% were cured and another 20% markedly improved and the operative mortality was about 4.2%.

Lambert and Berry have summed up the value of this operation very well in comparing it with the surgical treatment of cancer of the stomach and rectum, in which the cures approximate 33%, and the operative mortality high. They say that in estimating the value of Thoracoplasty it should be realized that the cases subjected to this operation, are not curable by any known treatment. These patients are invalids, and as a rule residents of Sanatoria for life, or a menace to others and if not successfully treated, eventually die. With such truths before us we cannot see how any one can decide against Thoracoplasty in properly selected cases. Archibald has so aptly said, "The operation of Thoracoplasty on tuberculous subjects is still regarded by very many as a most formidable one, to be advised only as a last resort. It is formidable in some types of the disease. But if, knowing the danger we exclude such types from operation we can make

it one of the least dangerous and most beneficent of all major operations. Betterman adds, "To my mind there is no question that at present the greatest danger of unnecessary loss of health and life associated with the operation of extra-pleural Thoracoplasty results from withholding the operation in suitable cases because of ignorance of the operation or failure to comprehend the possible good it may offer rather than from any or all operative catastrophies."

It is not our purpose to discuss the surgical steps or technical procedure of the operation of Thoracoplasty before this Assembly. To you who may be contemplating the performance of this operation we would give a word of warning, i. e., the preliminary resection of the lower ribs does not often give untoward symptoms or shock if we may be permitted to use such a term. When one starts the Thoracoplasty with resection of the upper ribs, such symptoms may ensue after only a few ribs are removed. We personally believe in the multiple stage operation, having learned our lesson following the fatality previously mentioned. Whether the operation should be done in two stages, three stages or more, depends upon the patient and the experience and judgment of each individual surgeon. It must be borne in mind however, that after posterior sub-periosteal resection of the ribs regeneration occurs in about six weeks. If, in the opinion of the surgeon, the interval between operations will be longer than this we would advocate beginning with the lower ribs. The removal of the uppermost, namely, the first and second is not easy primarily and if such resection becomes necessary at a second operation when scar tissue is present and the line of cleavage no longer evident and the periosteum adherent great difficulty may be encountered. May we here emphasize the fact that the keystone to the Thoracic cage is the first rib. All ribs may be resected except the first but lung compression will not be accomplished. Section the first rib and immediately it will be observed that the whole chest falls in, giving the desired result.

We wish also to mention one definite contraindication to Thoracoplasty and that is a shifting mediastinum. It is impossible to use compression therapy when the mediastinum shifts into the other side of the chest. In such patients operation should be delayed until the mediastinal structures have been fixed by inflammatory exudate or previous Phrenicectomy before using this procedure.

A word as to the anesthetic. In our work we have in every case used suitable doses of sodium amytal intravenously combined with either nitrous-oxide-oxygen or ethylene-



oxygen. We have employed local anesthesia but think it unsatisfactory in most cases on account of the psychic effect on the patient. We have had no untoward results following the employment of sodium amytal and gas and are convinced that this is the ideal anesthetic for these patients.

In conclusion may we reiterate that the treatment of pulmonary tuberculosis no longer belongs to the Specialist or the Internist. The best results in the treatment of this wide-spread affection is obtained by the combined efforts and close co-operation of the Specialist or Internist, the Roentgenologist and the Surgeon. By careful study and proper selection of patients, many who have been relegated to a life of invalidism or state support, may be treated so that they become self supporting and no longer a menace to their fellow beings. In parting we would leave one word with you, namely, consider the possibilities of surgery in those cases of pulmonary tuberculosis which are not responding to a carefully outlined and properly followed course of treatment.

#### BIBLIOGRAPHY:

- L. W. Frank and O. O. Miller, *Annals of Surgery*, May, 1930.  
 John L. Yates, *Archives of Surgery*, December, 1929.  
 Ralph C. Matson, *Archives of Surgery*, December, 1929.  
 E. W. Archibald, *Surgery, Gynecology & Obstetrics*, January, 1930.  
 A. V. S. Lambert and F. B. Berry, *Annals of Surgery*, January, 1930.  
 Bettman, *Surgery, Gynecology & Obstetrics*, January, 1930.

#### DISCUSSION

**Paul Turner, Louisville:** Mr. President and Gentlemen, Members of the Society: This paper opens up such a vast field for discussion that it is not possible to touch on more than a few phases during the limited time allotted. I wish to confine my remarks to phrenic exeresis, phrenicectomy, or, as Dr. Singer of St. Louis pronounces it, phrenisectomy.

Dr. Frank and Dr. Boulware are certainly to be congratulated on the number of cases that they have collected during the short time that this operation has been performed. I am sure that you are mightily pleased to get a presentation of this sort at this time.

This is a diagram of the chest. The object of all surgery in connection with tuberculosis is to collapse the cavity or to rest the lung. The ideal procedure in eliminating a cavity or giving the lung complete rest is, of course, artificial pneumothorax treatment. Oftentimes pneumothorax cannot be induced, for a number of different reasons. When we cannot do a pneumothorax we have to resort to some other method of procedure which results in a surgical operation; that is, provided medical measures are not doing the work.

Suppose we have a diffuse lesion at the top of the lung, of an exudative type of tuberculosis. This case is not doing well, but is progressing. There being no cavity up there, it is possible to think of several procedures. If we induced a pneumothorax in such a case, it might be more than was necessary to be done, and if we did a phrenicectomy in such a case it would raise the diaphragm from three to six or nine centimeters and give this the required rest necessary for complete clearing.

If it is not effective, you can still try to give artificial pneumothorax.

Suppose we have a cavity in this area. A phrenicectomy may even close that cavity under certain conditions. If the cavity is of a thin wall type, that will very often close after a period of, say, six months without any further treatment except the phrenicectomy. You must not expect too much from phrenicectomy at once. It will raise the diaphragm and hold the lung fixed immediately after the operation, and as time goes on the diaphragm will proceed to raise up a little further so in a period of six months it is quite high.

Dr. Howard reported to me a case that I referred to him a little while ago, in which immediately after the operation, the lung was diminished about one-half, so in that particular case he got a beautiful immediate result.

Suppose we have a case where we have tried to induce pneumothorax and we have a pocket of air and no real compression of the lung. In such a case it is useless to try to continue the artificial pneumothorax. Here again, phrenicectomy may be performed and good results obtained.

I am talking about cases where the contralateral lung is in good shape, either with no evidence at all of tuberculosis, or very slight or a minimal amount, as we say, at the apex of the other lung.

I want to say one or two other things about this rather than to give you the whole list of indications for phrenicectomy. I want to say a word or two about the operation itself. There are a few little tricks in it that anyone discovers after he has been operating on these nerves a little while. One thing is that after you get through the platysma and deep fascia (and, by the way, the transverse incision is the accepted incision now) you have got to retract a little fat cushion before you ever see the nerve.

Another thing is that when you pick up the nerve it always gives pain in the corresponding shoulder. The patient will always tell you it hurts, and it hurts so he will make no mistake about telling you. If the nerve is not adherent to the mediastinum, it will pull out very nicely. If it is adherent and you start pulling it out, it will give a little more pain in the chest, and as

it releases from the diaphragm the patient experiences what he says is a thud.

Sometimes you run into all sorts of anomalies. This really is an easy, simple operation, but you run into difficulties rather frequently on account of the abnormalities of the phrenic nerve and the abnormal accessory nerves that run with it.

If you try to pull out this nerve and it doesn't come with the amount of tension you expect should be placed on the nerve to remove it, it isn't wise to pull too hard because the thing may be wrapped around the internal mammary artery or the subclavian vein and you may do too much damage. It is wise in those cases to dissect down and remove a certain amount of the nerve which will be sufficient, and then look for accessories, because they are probably present.

The last two cases that Dr. Frank did for me happened to be rather difficult cases. In one there were two phrenic nerves. He found one (it looked rather small), and then he looked around a little further and found another one. In the last case I am certain that if the subclavian had not been cut the result would not have been obtained, because as we traced down the subclavian nerve we could see that as it branched off and went right straight down into the chest.

Usually when you evulse the nerve, if you get ten centimeters of it, it will take care of these accessory nerves. If you don't get that amount it is wise to search for these accessories and be certain that you find them.

**Walter I. Hume, Louisville:** I will say at the outset that I have had very little experience with external thoracoplasty. I think this paper, though, is entirely too important to go without further discussion. This is a new field in surgery, and I think it offers a great deal.

My experience has been in the closure of empyema cavities. Just recently, for example, I had a case that was seriously ill because of a long, persisting empyema cavity which following thoracoplasty has gained a great many pounds and has returned to his work.

I think the idea of this surgery for tuberculosis of the lungs, providing, of course, we stick to the indications outlined for us by expert medical men in that line, is sound. The idea of collapsing thin walled cavities in order to enable granulation tissue to become apposed and to heal finally is sound. I think this is a great field.

It has been my privilege to hear Dr. Archibald expound his ideas and to witness some of his work. I also have had the chance to see Dr. Hedblom do some of his work at St. Luke's in Chicago. The work appears very radical indeed. The deformity following some of these thoracoplasties must be immense, but the recoveries in these very poor subjects are remarkable

at times. For a class of people with almost no hope, who are confined in sanatoria perhaps for life, there should be certainly some ray of light in the kind of work that Drs. Frank and Boulware are doing.

I think Dr. Frank and Dr. Boulware are to be congratulated upon the results they have obtained so far. I predict greater things for them in this field.

**Wallace Frank, (in closing):** I want to thank Dr. Turner and Dr. Hume for their very splendid remarks.

You must remember that these patients are all accustomed to living outdoors. If you coop them up they have difficulty in breathing.

The operation of phrenicectomy is done under local anesthesia. (Slide) Here you can see the weal, about an inch above and parallel to the clavicle. The injection is being made about the middle of the posterior sternocleidomastoid muscle to get the proper effects.

(Slide). This shows the transverse incision with the outer border of the sternocleidomastoid retracted inward and here you see the fatty layer of which Dr. Turner spoke.

(Slide) This shows the phrenic nerve coursing downward and inward in the sheath of the scalenus anticus muscle.

(Slide) This shows the nerve much better. It was taken to show the position. It is in the sheath of the scalenus anticus muscle. If you split that sheath and then start to hunt for the nerve, you may be in trouble, because oftentimes you take your nerve away as you push off the sheath. This picture was taken to show the position of the nerve and is not the technic we use, as the incision here demonstrated is longitudinal and we use the transverse.

(Slide) Here the nerve has been injected, sectioned, and the twisting process or avulsion of the nerve is being carried out.

(Slide) In this we show the closure with interrupted sutures.

(Slide) This is a nerve that we took out of one of the patients whose slide I will show you later. The cervical end of the nerve is at the 33-centimeter mark. You can see the swelling, the protuberances where the branches had been given off. This man got a complete cure.

Here, briefly are the indications for thoracoplasty:

1. Above all, the disease must be unilateral, or, if the other lung is involved, the process here must be quiescent, otherwise you cannot use thoracoplasty.

2. The pathological process should be of the productive type, namely, there should be a large amount of scar tissue and not the soft, exudative type that we see so commonly in the negro.

3. The patient should be afebrile.

4. Where the disease is limited to one lung and of the fibroid type and pneumothorax is un-



satisfactory or is failing, thoracoplasty is indicated.

(Slide) This shows the incision used in thoracoplasty. It begins opposite the splenius capitis and goes about an inch away from the midline, downward and outward.

(Slide) Here the assistant is retracting and lifting up the scapula, taking the whole arm forward in this manner.

(Slide) This shows the section of the rib. It is important in thoracoplasty to get well behind the angle. As you remember, the rib comes out straight and then curves. If you get behind the angle you can take out a small amount and get much greater collapse than if you go in front of the angle and take out longer length of rib. The hemostat here is at the angle of the rib and the costotome is a good two inches behind.

(Slide) This shows the collapse. Here you see the chest wall, here the sunken part where the ribs have been removed. In this case we began at the base, because this woman has not only pulmonary tuberculosis, but also has bronchiectasis.

(Slide) This shows the length of the ribs removed. This is the eleventh, tenth, ninth, eighth, seventh, sixth. On next Saturday we plan to remove the upper five ribs. She is in very good shape.

(Slide) These are some pictures showing the x-ray results of phrenicectomy, the one on the left being before, and the one on the right after operation. This girl twelve years of age, had a very great cavitation here, which I think you can see, close to the root of the lung. She is one of the youngest patients we have. Following phrenicectomy she had a rise of the diaphragm with the obliteration of her cavity. This child is well.

(Slide) This is one of the nurses from the Baptist Hospital who had had pneumothorax. You can see the pneumothorax, the lung being down this far, with the cavity in the interclavicular region. The diaphragm has risen; the air has since gone out. This girl, instead of being a bed patient, is one the chief nurses at Waverly Hills.

(Slide) This is a young married woman. Here we see her disease previous to operation. This is one of the most remarkable rises we had. The diaphragm went up to the third rib anterior.

(Slide) Here you see the rise of the diaphragm following operation. This is the obliteration. If you looked at this girl now you would never know she had been sick.

(Slide) Here we put both of them on one slide to show you actually what happened. Here the clavicles are practically in the same position, and here you see the cavity. Now it is gone, and this girl is all right.

(Slide) This is a picture of the one on whom

I showed the 33-centimeter length of nerve. This fellow had been at Saranac three years, at Phoenix, Arizona, a year and a half, at Colorado Springs about a year, and he had been at Waverly Hills for eighteen months. He put off operation, but finally consented. He had been taking pneumothorax straight along, but was a bed patient. We had some difficulty in identifying the nerve, but eventually got 33 centimeters. You can see here his pathology. He had a cavity in the upper part of his right lung. Following operation there was a rise of the diaphragm to about the fifth rib, with the obliteration of his cavity. This man works six hours a day.

(Slide) This is one of the good results we have had in the negro. The negro doesn't respond to pneumothorax. The results at Waverly are 61 per cent mortality, regardless of the type of treatment that is used. You see he has a basal type of lesion, one of those which especially responds to phrenicectomy. Following operation he had a rise of his diaphragm with a clearing of this wide tuberculous area of invasion. Since then this man is still improved, and we have taken no later pictures.

(Slide) This is a widow of one of the Louisville ministers. This shows the disease in the right lung. Two months following operation there is practically a complete resolution of her tuberculous process.

(Slide) This shows the same thing, but shows just one side of her chest and gives you a better idea of the pathology before operation and what is going on now. This woman is leading an ordinary, every-day life.

(Slide) This last one, I think, shows very well what we can do even in thick-walled tuberculous lesions. This patient had pneumothorax. I think you can see very definitely this large tuberculous cavity in the right apex.

(Slide) Four months after operation her lung is coming out, her cavity is gone, her sputum is negative. This woman has been discharged from the hospital.

(Slide) This case is the first phrenicectomy we did, and also the first thoracoplasty. He was operated under local anaesthesia for the first two stages of thoracoplasty and under gas for the third stage when we took out the top two ribs. This slide was a picture made previous to operation. You see the chest out here with relatively diffuse involvement. Here you can see the ribs fallen in. They have retracted some because he has the fibrous type of disease, which is one of the indications which should exist before thoracoplasty is determined upon.

Dr. Hume spoke of the deformity following this operation. This picture is taken after the operation, and you can see a little drooping of the shoulder, and that is all. If you saw this man on the street you would never notice it.

About four-fifths of us have one shoulder a little lower than the other one anyway.

(Slide) This is the posterior view showing the droop here and the scar of the incision. We did the lower ribs first in this case, we now do the upper ribs first.

(Slide) This girl is one who didn't do so well. She had a little trouble on the other side; she hadn't responded to anything, and while most of her disease was in this lung, there was some involvement of the other side. She had been in the hospital for a while and was slipping, slipping, slipping, and we felt we might get somewhere with operation. We did a phrenicectomy and a complete collapse, taking eleven ribs at one operation and she came through all right. I might say that we no longer do this operation in one stage.

You can see here the collapse and how much lung tissue she has left.

Since those plates were made she has had some activation on the other side, and, as I say, we don't know what her outcome is going to be, probably not so good. I believe we erred when we selected her for thoracoplasty, but we felt at that time we were doing the best thing possible for her.

(Slide) This slide is one in which the patient still has a small area of active lung, and we are going back to take out some more of the upper two ribs. It is a rather difficult procedure, once you have taken the ribs out, to go back and do more, because the adhesions between the periosteum and the rib are very dense, and the adhesion between the muscle and the bare rib has been reformed, it is denser, and it is a difficult piece of surgery, especially when you get up around the first rib where you have your subclavian vessels and you brachial plexus crossing. That is the hard part of it.

(Slide) This boy was operated, I think in April. He has pneumothorax on one side, with a large cavity here which absolutely cannot be collapsed because his whole lung surface is fixed to the parietal pleura in the upper part of his chest.

(Slide) This illustrates the result following his first stage. We began at the top and the collapse has been very good. It shows one thing which we emphasize. You can see here a beginning shift of the mediastinum. Here is the trachea, and you can see a beginning shift into the other chest. In other words, here is a case which it probably would have been better to wait on until he had absolute fixation of his mediastinum, because you can't compress this lung if the whole lung and mediastinum are going over into the other side.

(Slide) This shows his end result. He still has here a partial pneumothorax; it has not all absorbed. We got some out with a needle, but at that it has not completely gone. You can

see very well here the shift of his trachea; he has a bifurcation over here. It is well over into his left chest.

(Slide) This shows the condition before operation on one side, here the collapse, and the shift of the mediastinum. Since that boy has gone back to the sanatorium his mediastinum has become fixed. He is going to do very well indeed.

(Slide) You can see here that he has no lung tissue on that side. He has picked up about fifteen pounds. He still coughs a little bit, but his indications are that he will make a good recovery.

(Slide) This is a young woman with rather extensive disease in the upper part of her right lung, a little bit in the left.

(Slide) This is following her phrenicectomy with a rise of the diaphragm on this side, with the pneumothorax in here, with her cavity and fixation here.

She had been in the hospital then fifteen months and she wanted to know how long it was going to take her to get well.

(Slide) This shows the end result, namely, absolute, complete collapse of the right side of the chest. This girl was done in three stages, taking the upper four ribs, the next four ribs, and then three ribs. Following the second stage of her operation her cough ceased, her sputum stopped, and she doesn't expectorate anything. She has gained about ten pounds, and we all feel certain she is going to make a perfect recovery.

(Slide) To look at this fellow you would think he is hopeless, with some trouble here, a little here, and a lot of infiltration in the other lung.

(Slide) This shows the effect of the treatment following the pneumothorax, some clearing in here, decided clearing in the other lung.

(Slide) Here there is still more improvement in the other lung. There is a definite cavity at the left apex.

(Slide) Following the first stage of the thoracoplasty. We did the upper five ribs first. You can see the amount of pressure made. Here is the lung. This is pneumothorax which has not completely absorbed.

(Slide) This is his end result, with complete collapse of the lung, this lung doing very well. He has no cough, he has no expectoration, he has no temperature; he has taken on fifteen or eighteen pounds since he left the hospital and gone back to the sanatorium to complete the treatment.

(Slide) This girl was done in two stages. Here you see the disease on that side of the lung, the other side practically clear. Here is complete collapse of the chest, no aeration. This girl went back to take care of her full household duties, and since the second stock market



crash this fall and since money got tight, she has been down in Louisville hunting a job. You never could tell this had been done except for the little droop in this shoulder, that she has had ever since.

In closing I want to emphasize again that surgery in these cases is but one means to an end. After you do this and take the ribs out and take the nerves out, you are not through. The patients still have to have sanatorium treatment for a while; they must always, of course, be careful. (Applause).

### THE SCHILLING BLOOD COUNT\*

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Hematology has been an important branch of medicine for years and there have been many advances made since the early work but most notable of the recent studies has been Prof. Schilling's description which was first published in 1912 and edited in its seventh and eighth revisions in 1929.

Through the translation and work of Dr. Gradwohl this is now available to the American profession and it will be not only interesting but most helpful to all who study it. The author is more than a hematologist for he is also a clinician of considerable note and the clinical application of his work is enlightening.

Much could be written about the history, progress and details of this work but my desire is to present this subject in a way to give you the salient points and stimulate an interest that will call forth more study on the part of each one. As is true with all that is progressive there is necessarily dissension, and frequently eriticism can be heard of this work, but the words of the author best give his desires regarding his work. "An understanding of the blood picture should no longer be a rare art, but rather a routine procedure, familiar to all physicians. This guide in no sense is intended to replace the well-known manuals of hematology, but rather to supplement them in a novel and practical way by simplifying existing methods to the exclusion of all superfluous material."

Prior to the work of Schilling the most noteworthy attempt to improve the classification of the differential blood count had been done by Arneth, who developed several years ago a quite elaborate classification which was entirely impracticable for the clinician. There were more than 80 various types of cells recognized, and great care and technic re-

quired to avoid confusion. The work of Schilling solves this difficulty and in recent years Arneth has used a more practical classification that rather closely simulates the one we are discussing. For research and the solution of certain problems, however, Schilling recognizes the importance of the more elaborate method but attempts to confine his work to a method practical for all clinical purposes.

Many capable men have made various suggestions and tried to simplify Schilling's count. In 1924 Pons and Krumbhaar suggested that for all clinical purposes we might divide the neutrophiles into three classes. (1) The metamyelocytes or (very young) (2) The non-segmented and (3) The segmented. This simply unites the earlier cells into one group.

Piney in 1928 suggested that we disregard the early cells since they occur so seldom.

Cooke and Powder in 1927 simplified Arneth's work by dividing the neutrophiles into classes 1-5 depending on the number of segments in the nucleus.

One of the most recent works from Philadelphia under the joint authorship of Drs. Farley, St. Clair and Reisinger takes into consideration the previous works of all of the above mentioned men and they state that their purpose is to popularize a further simplification, feeling that in all cases a differential polymorphonuclear leucocyte count should be determined. Their idea being to establish a method practical to all men without special training being necessary. Their criticism of the Schilling method is that it lacks the clear cut differentiation of cell nucleus.

The greatest advantage in Farley's method is that the Wright stain gives as good results as any of the more elaborate stains. While many times the Schilling count is difficult without the special stains used by Prof. Schilling.

Farley and co-workers divide the neutrophiles into two classes namely the non-filament cell and filament cell. Their work is best summarized in their own words, "We believe that the most delicate method of studying the reaction of bone marrow in infections of all types is the estimation of the young forms of polymorphonuclear neutrophiles. This is in agreement with others. It is especially valuable in the diagnosis of cryptic infections of sub-acute or chronic types where there is no increase in the total leucocyte count. It may add additional presumptive evidence in cases of malignancy and hysteria, masquerading as organic disease. Its value in prognosis is yet to be established."

At present many hospitals and private lab-

\*Read before the Kentucky State Medical Association at Bowling Green, September 15-18, 1930.

oratories are either using the Schilling count exclusively or checking the older method with the Schilling method.

The differential count, even the older method has been neglected because too few have been entirely familiar with the interpretation and it is to be hoped that a better understanding will result from this newer study.

Even from the time of Ehrlich the leucocytes have been divided according to their origin from the hematopoietic organs, namely: those of myelogenous origin and those of lymphatic origin. More recently the monocytes have been recognized as a third system of separate origin namely—the endothelial system—and today the triastistic theory of origin is most commonly adopted.

The leucocytic blood picture of a normal adult in the peripheral blood stream is in rather constant proportion and is so maintained by the physiological importation of cells from the blood-making-organs replacing those which are constantly degenerating. This gives us the picture of regeneration and degeneration which is to be described in detail as we progress with this study.

The Schilling classification is fundamentally similar to the older method, the relative relation of neutrophils and lymphocytes being maintained, but realizing that normally there are only mature cells in the peripheral circulation. However, finding the immature cells under certain pathological conditions called forth a classification that is impossible under the older method.

In order to be familiar with the fully matured cells which appear in the normal circulating blood and undergo no further change it is best to learn not only the three major divisions already mentioned but also the subdivisions.

The granulocytes, those cells arising from the bone marrow are subdivided into three groups as follows:

- (1) Basophilic leucocytes
- (2) Eosinophilic leucocytes
- (3) Neutrophilic leucocytes.

The basophiles and eosinophiles are recognized as in the older method and are unchanged, but the neutrophils are subdivided according to the nuclei and age of the cells, into the following classification:

- (a) Myelocytes
- (b) Juvenile or youngform
- (c) Staff or stab cells
- (d) Segmented cells

The myelocytes are the primary bone marrow cells with large round coarsely granular nucleus, with pale protoplasm containing granulations difficult to stain. These are not present in the normal peripheral blood and

their presence is indicative of bone marrow irritation.

The Juvenile or young form is very rarely found in the normal peripheral blood and found only after bone marrow irritation; is somewhat larger than the myelocyte, with a nucleus sausage or bean shaped, not so intensely staining but with distinct subdivisions in the nucleus and more deeply stained bodies in the end-bulbs. The protoplasm is about as in the myelocytes, bluish color with indistinct granulations.

The staff or stab cells have been the occasion of considerable disagreement between various hematologists and the points taken by such authorities as Arneth that they only are degenerative neutrophils is positively challenged by Schilling who says that all neutrophilic cells have regenerative forms. The regenerative staff cell is not present in normal blood. They are considered as mature cells that have not partitioned but still retain the sausage or bean shaped nucleus, being however, hyperchromatic and slightly smaller than the juvenile form.

The fully matured neutrophilic or segmented form has multiple nuclei, the result of division in the youngform cell. Normally this cell composes about 50-65% of the neutrophilic count and its increase is quite suggestive and many times diagnostic of the pathology.

Probably the most important part of Schilling's work has been the above classification of the neutrophil and his interpretation of the changes that occur in these cells under certain conditions. Arneth did considerable work also along this line and established an index which has been rather widely used both as a diagnostic and prognostic scale in many diseases. However, the work of Schilling goes into it in a more practical way and the hemogram or picture made by Schilling's classification give many points that are not elicited from the Arneth index. Interpretation of a Schilling hemogram necessitates considerable study and familiarity with the work, but the interpretation of an Arneth index is quite simple and furnishes very little more information than the old conventional method.

The lymphocytes are described by Schilling in exactly the same manner as by previous hematologists and normally they are present in about 25 to 35%. In acute infectious processes they are diminished in the blood count and are replaced by the neutrophils which are increased. While in the chronic conditions and in lymphatic involvement there is an increase in these cells.

Lastly the monocytes including the "transitional forms," make up about 6% of the leucocytes. As is true of the lymphocytes these cells also disappear in acute infections but in



subacute conditions there is frequently an increase in the monocyte.

There is much misunderstanding among many practitioners regarding the proportional changes in the various forms of leucocytes and Schilling has devised a method that rather clearly depicts the significance of these changes and this interpretation in the form of the hemogram or blood picture is the most important diagnostic and prognostic feature of his work.

The leucocytic blood picture is composed of three stages as follows:

1. Changes in the total count.
2. Changes in the differential percent.
3. Regenerative and degenerative change in the individual cell.

The first two need no explanation in this paper as we are familiar with the normal limits and abnormal changes in each disease regarding the total leucocytes. Also we understand the relative and absolute increase or decrease in the differential count. But the Schilling index as cleverly plotted by Reznikoff shows better than any other method the explanation of the so-called left and right neutrophilic shift.

Probably the most interesting way to illustrate the foregoing points would be the following case reports.

The first, a young woman in splendid health called me complaining of rather severe pain in the right lower quadrant, accompanied with nausea. At the time of examination there was guard in the lower right quadrant, temperature 99.4, headache. A blood count was done by the Schilling method revealing only a moderate increase in the leucocytes 12,900. However, there was a definite increase in the Juvenile and Staff cells with a moderate left shift. Ordinarily I would have been inclined to observe this patient for some hours as the total poly count was only 79%. Because of the 6% Juveniles, however, I felt we were dealing with a pyogenic infection and called surgical consultation. Operation was advised at once and pus was found as soon as the abdomen was opened, less than four hours having elapsed after my first observation. There was an absence of Eosinophiles also in this count which was another indication for advising surgery.

The other case was a young physician who gave a history of frequent discomfort in lower right quadrant since March 19, 1930. Each attack accompanied with nausea. From March to July I made three blood counts according to the Schilling method. In none of them was there a left shift, the leucocyte count was never above 10,000 and in two of the three counts eosinophiles were present. Complete gastro-intestinal study was done both x-ray

and laboratory. A competent x-ray man suggested chronic appendix. Finally in August the appendix was removed against my advice and the pathologist reported sclerosed appendix with no inflammatory changes.

The third case I mention simply to show the significance of eosinophilia from a prognostic standpoint. A typical case of pernicious anemia that has shown consistently eosinophiles since being placed on liver therapy. These cases of eosinophilia are typical of the regenerative changes seen in improvement. Recent medical literature contains many articles commenting on the high eosinophile count in these cases.

My personal opinion is that Schilling's explanation of the eosinophile accounts for this condition.

In the normal individual no myelocytes or youngforms occur. When myelocytes or youngforms appear in the blood or when there is an increase response on the part of the bone-marrow to throw out the immature forms, this is called a left shift. An increase in the per cent of polys with no immature cells in the picture is a shift to the right. We can readily understand the significance of such findings and an interpretation is of considerable importance. The immature cells signify a tendency to overcome the infection and an effort is made to combat the invasion by hurriedly sending reinforcements. This is found most frequently in the acute infections while in those that are chronic the shift is more apt to be a right shift.

In pneumonia, acute upper respiratory infections, active pulmonary tuberculosis, meningitis, septicemia and such conditions more than 20% of the polys are immature. The higher the per cent of immature cells the more severe the infection. Frequent checks in the blood picture are quite helpful in determining the progress of your patient.

The Schilling index is also found to be quite delicate in tuberculous patients. In clinical active tuberculosis there is a constant left shift of the polys. The monocytes have an important diagnostic role. An increase in the early cases mean progression of the disease. Lymphocytes also are important and show an increase with healing and a decrease with progression. In this disease the Schilling hemogram can be quite helpful.

There are also other points that are helpful in reading a hemogram and that is the change in per cent in the eosinophiles. These cells are the most sensitive of the peripheral circulation. In infections or severe intoxications the eosinophiles are the first to disappear and only their re-appearance is a favorable symptom. It is usually the very first favorable finding even prior to a change in

the clinical picture. The basophiles closely parallel the eosinophiles in this respect but the number is smaller and they are hardly as sensitive in their response, this making the eosinophile the easier cell to study.

Thus far we have reviewed Schilling's descriptions of the individual cells and also the groups but a description of this newer method would not be complete without a review of the interpretation of an entire blood count. A few points are especially emphasized and classed as fundamental rules.

We have mentioned the importance of blood pictures and are about to outline the clinical, symptomatic and prognostic interpretation of a Schilling hemogram but always observe these together with the complete clinical findings in the case.

I. All blood pictures with beginning regeneration and moderately high white count are favorable as compared to those with degeneration and moderately high counts.

II. Too rapid regeneration is an unfavorable finding and especially with a decreased or decreasing white count.

III. Hyperregeneration with hyperplastic blood pictures are even more serious.

IV. A regeneration or aplastic pictures are always serious.

V. Marked decrease of eosinophiles with increasing leukocytosis indicates an aggravated condition.

VI. Total disappearance of eosinophiles with decreasing lymphocytes is an unfavorable condition.

VII. Constant presence of eosinophiles increasing parallel with an increasing leukocytosis is a favorable sign.

VIII. Reappearance of eosinophiles with decreasing leukocyte count is favorable, even more so with transition into lymphocytosis.

IX. Moderate high count with little change in differential count and with eosinophiles present is favorable.

#### CONCLUSION

1. There is definite difference in the neutrophils and a classification should have some value.

2. A Schilling classification affords greater information in a larger per cent of cases than the conventional count.

3. Repeated counts frequently are enlightening when single counts give little information.

4. Blood pictures should be interpreted with clinical findings in each case.

5. Schilling gives more importance to the eosinophiles than other hematologists.

#### REFERENCES

- Cooke, W. E. and Parder, E. *The Polynuclear Count*, Chas. Griffin & Co., London, 1927.  
 Piney, A. *Recent Advances in Hematology*, P. Blakiston's Son & Co., Philadelphia, Pa., 1928.  
 Pons, C. & Krumbhaar, E. B. *Studies in Blood, Morphology & Function*, Journal Laboratory & Clinical Medicine, 1924, 10, 1.  
 Archives Internal Medicine, 1929, 44, 772.  
 Journal American Medical Association, 1929, 93, 963.  
 Schilling—*The Blood Picture*, 1929.  
 American Journal Medical Science, 1930, Vol. CLXXX.  
 The Normal Filament and non-filament Polymorphonuclear Neutrophile Count.  
 Kentucky State Medical Journal, 1930, July. Dr. J. D. Allen. *The Schilling Count*.

#### DISCUSSION

Will Allen, Louisville: Dr. Stites' paper has been quite interesting to me, and I think he has given us quite a fair insight into the differential blood picture as presented by Dr. Schilling, both as to the type of cell and the significance to be placed on these different cells.

Those of us who are more or less daily in contact with the blood picture of different diseases I feel, appreciate this interpretation more fully than the internist or general practitioner. We have always felt that the blood count in pyogenic conditions was of more or less value as a diagnostic aid in determining whether or not this condition is pyogenic. Now we feel more inclined to lay stress on the blood count as a diagnostic aid and as of value to the clinician in making his diagnosis than ever before.

Heretofore, with a blood count showing an increased leukocytosis and a differential count of 80 per cent polymorphonuclear cells, we have felt that this within itself was almost diagnostic. But as we see the blood count today and interpret our picture as Dr. Schilling has presented it to us we feel that we can lend much more aid to the clinician than formerly, for the cells that we have divided only as polymorphonuclears, classified only in one group, he has divided into four different classifications, laying great stress on each of these classifications, more stress on the classification that he decides is the younger type of cell, and on each other classification according to its youth as it appears in the blood stream.

I feel that though this blood picture is of great diagnostic aid in any pyogenic condition, it is of extreme aid in conditions which normally give us a high leukocyte count and may be more or less a decided polymorphonuclear count.

I have in mind especially a case that I have seen recently in which the patient was a pregnant patient and in which there was some question as to whether or not she had appendiceal involvement. The blood count normally in pregnancy may run 15,000 or more. Our differential blood count may show an increase in polymorphonuclears, but with this same patient, and considering this same blood count, if those poly-



morphonuclear cells should be divided in a percentage of three or four per cent myelocytes, five or six per cent of the juvenile type, fifteen to twenty per cent of the staff type, we would have no hesitancy in feeling that this patient should have further consideration and should be examined more closely by the attending physician, for with this count, and with the interpretation that Dr. Schilling places on these cells, we feel very positively that the appendix is involved.

**Frank M. Stites** (In closing): I appreciate the discussion by these two men. I don't think there is very much to emphasize except that I want to say that in all surgical conditions, particularly those of questionable diagnosis where you are not sure as to whether or not to operate, many times the Schilling count will clear up this point for you. That applies not only to general surgery, but to mastoid infections, which are rather obscure, and to other conditions.

The Schilling count with the differentiation of the polymorphonuclears according to Schilling's method will many times be a great help.

## THE PROBLEM OF THE DISEASED COLON\*

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Every period of civilization from the crude aboriginal states to our present highly cultured scientific age has had problems that were peculiar to its own time, ranging from the preservation of life against attacks by wild animals to plagues, floods, wars etc. There has been one problem, however, that has remained almost constant in one form or another from the earliest time. No matter how primitive the civilization or how well educated the race the subject of diseases of the colon, absorption of poisons and constipation has been an ever present problem.

The earliest medical writers dealt with costiveness and attributed many types of illness to colon disturbances. The early races were not concerned with vitamins, allergy, mineral balance etc.; yet they had problems of diarrheas, dysentery and constipation. Whole armies and races were destroyed because they did not know how to boil water and preserve food. While in our civilization these diseases have been prevented by cooking and canning, yet we, on the other hand, are victims of the so-called deficiency diseases and diseases of the colon are still with us. Medical writers of antiquity and the lore of early races do not prove the somewhat current idea that primitive races were

not constipated and that this disorder is a consequence of civilization as evidenced by the wholesale use of the "physic" in early writings. Every people, including the present, have had their sacred bark, roots and herbs.

There is no topic more fruitful of discussion than that of constipation and its allied disorders. The terms auto-intoxication, colonic stasis and catarrh of the bowels, so frequently used just a few years ago, bear witness with their equally illogically described successors of the present, mainly, mucus colitis, toxic colon and splastic colon that the problem is still far from being solved. (My objection to the description given these disorders is that they are grouped either from their chief symptoms or x-ray manifestations and are not described from a standpoint of etiology or pathogenesis.)

The treatment likewise has varied from all sorts of peculiar diets; orange juice, yeast, spinach, pet seeds, bran, etc., to the supposedly special patented methods of colon laundrying. The colon has been the most abused organ in the body. Soap suds enemas and purgative pills of all types have been devised to irritate this organ. Various types of colonic diseases have been discussed and elaborate systems devised for their alleviation, yet in spite of our excellent scientific status there is no subject that is so little understood and about which so many absolute opinions are held. Every doctor and even laymen have their own ideas and pet cures. The fault, common to all, is that we attribute all types of diseased colon in each individual to some standardized theory and prescribe a stereotyped cure. As long as the majority of our doctors hold this view but little progress can be made. Until we realize that the topic is individualistic in each case and consider each case on its merits alone, after a complete and thorough examination of the entire individual, we will never solve this perplexing problem. The only certainty of this subject is its variability.

Due to its position in the gastrointestinal tract, its innervation and the nature of its function, the colon is subject to an extremely wide range of disorders varying from embryologic malformations, malpositions, inflammatory states and parasitical infections to the secondary manifestations of reflex disturbances, endocrine disfunction and allergic reactions.

The symptomatology of the whole class of these disorders nevertheless, is very vague and in only rare instances characteristic enough to make an accurate early diagnosis from the history. It is, therefore, most imperative that a most complete and careful

\*Read by invitation at the annual meeting of the Campbell-Kenton County Society, Newport, February 5, 1931.

study be made using every available scientific method.

For convenience of study we can roughly group these ailments into: 1. Gross or non-inflammatory. 2. Inflammatory. 3. Parasitical. 4. Reflex. 5. Endocrine. 6. Allergic states.

The non-inflammatory class includes malformation, adhesions, benign tumors, all types of malposition, specific strictures, diverticuli and malignant growths.

Malformations of the colon itself are quite rare while deformities of the peritoneum and mesentery are more common and vary from the cecum having a short mesentery to that in which the cecum, ascending colon and part of the transverse colon have a common mesentery with the small intestine. The length of the sigmoid is quite variable. In some cases it appears to have almost no mesentery, is only slightly mobile and forms only a slight loop while in other cases it can be lifted into the upper part of the abdomen. These cases of extreme redundancy usually produce marked stasis with its usual train of toxic symptoms.

Ptois is both congenital and acquired. The acquired forms are due to loss of tone of the abdominal muscles, loss of weight or a chronically filled bowel exerting its weight over long periods of time on its attachments. Ptois readily diagnosed by x-ray is of no great importance if the bowel can properly empty itself regularly and completely. On the contrary it must always be born in mind that in addition to stasis and toxic absorption it may produce reflex disturbances to the upper gastrointestinal tract and very marked constitutional and nervous states. Properly directed exercises to increase the tone of the abdominal muscles supplemented by the use of an exact fitting abdominal support are to be preferred in the large majority of cases to surgical fixation of this organ.

Mega colon and micra colon are extremely rare but are easily diagnosed by the x-ray.

Adhesions involving the colon are very common. They vary from a single band partially kinking or obstructing the bowel to dense extensive adhesions often the result of peritonitis from a previous abdominal operation. In the majority of cases adhesions may cause no marked trouble and if they do the symptoms are classic, yet it is always wise to consider the question of adhesion in any case of vague or ill defined symptoms of the intestinal tract that has had a previous abdominal operation.

Benign tumors of the colon are exceedingly rare. They consist chiefly of myomata rising from the muscular coats of the bowel, angiomas which are congenital, papilloma,

and multiple polyposis. Polyposis is of a special interest in that there is no benign process in which a higher incidence ingrafted malignancy occurs. The most frequent site of polyposis is the descending colon and sigmoid and in this position it is readily diagnosed by protoscopic examination. If the growths are low enough they can be removed by a furligation through a protoscope but if they extend above the lower arm of the sigmoid some method of colostomy should be done to divert the fecal contents from passing over the diseased area. When this is done the pathology usually subsides. In the more aggravated types where we suspect malignant infiltration removal of the diseased bowel should be performed.

Strictures of the colon are rather rare and in most instances due to malignancy. Rectal strictures on the other hand are quite common and are not, in my opinion, commonly due to syphilis but are the result of a very active type of ulceration in the rectum or the result of a gonorrheal infection. Spasmodic strictures while rare may occur at any portion of the large bowel and cause pronounced obstruction.

Diverticuli, or local pouching of the mucus membrane, may occur in any portion of the gastrointestinal tract except the rectum. They are not considered harmful in the small bowel due to the liquid condition of the contents; they only become pathologic when they contain solid material. Since the contents of the colon increases in solidity as it passes down the bowel and its germ life becomes more violent near the outlet the most frequent site of diverticuli are the sigmoid and descending colon. The diagnosis can be readily made preoperatively by the x-ray. Diverticulitis is of importance in that it may resemble any acute inflammatory condition of the abdomen.

Cancer of the large bowel is found more frequently in the rectum and lower sigmoid where it is within easy reach of the examining finger. Statistics show that about eighty per cent of the cancers of the large bowel are recto-sigmoidal. Cancer in this area is usually of the medullary type, where as, cancer occurring in the upper colon is usually of the scirrhous type. While still very unsatisfactory surgery alone affords these unfortunate individuals the only relief.

Fully developed cancer wherever located in the large intestine produces typical symptoms, alternating diarrhea with constipation, colonic distension, soreness, tenderness, mucoid discharge and loss of weight. Unfortunately, early cancer of the large intestine gives rise to but few symptoms, and unless greater attention is paid to vague manifestations referable to the intestinal tract, and



more thorough diagnostic studies made, cancer will never be successfully treated by the surgeon.

I believe that the most constant early symptom of cancer of the large intestine is progressive loss of weight, with constipation or vague intestinal disturbances, and that these conditions should call for a careful protoscopic and sigmoidoscopic investigation with x-ray examinations and an exploratory celistomy if indicated.

2. The inflammatory group comprises by far the largest percentage of colon disorders and includes all types of colitis, sigmoiditis and proctitis.

Although a great deal of investigation has been done on the bacteriology of these conditions we still are unable to simplify the procedures enough to make it practical for general use. While every known cause has been advanced for the production of these ailments experience has only substantiated the belief that they are mostly secondary in origin.

We have long taught that inflammatory conditions of the bowel, except in rare instances of infection through the rectum such as gonorrhea, are due to secondary foci else where in the body, namely infection of the teeth, gums, tonsils, nares, sinuses, gall bladder or as an aftermath to some constitutional disease. I have seen a great many such cases follow attacks of pneumonia, typhoid fever and have been profoundly impressed with the large number that follow attacks of influenza.

Very frequently the secondary infection in the colon is far more intractable than the primary cause. Hence the removal of septic foci does not relieve them and the colon may be dispensing products of the secondary infection after the primary ones have been effectively dealt with, that are more far reaching and disastrous to the health and well being of the individual than the primary cause was.

The freedom of symptoms and the regularity of the evacuation of the bowel is in no measure an index or criterion to the state of health of the colon. A bowel may function normally and exhibit no subjective symptoms whatsoever and yet be a veritable cess pool of infection that is constantly absorbed by the individual. As I stated in a previous paper I regard the mucosa of the large bowel as having a dual function. First absorbing water and nutritive substances which I call threshold, and secondly a protective function in preventing the absorption of toxic material or non-threshold. Whenever the normal function of this protective lining is interfered with by infection, ulceration or chronic irritation from drastic or long-continued purgation, large amounts of toxic materials are absorbed into the circulation, that may produce

any type of ailment due to toxic origin.

It is often very difficult to isolate the offending organism in most of these disorders and if we do succeed it is a more difficult task to eradicate it because the mucosa of the large bowel is thrown into almost continuous folds, lined with glands and follicles and always possessing the optimum moisture and temperature at which bacteria thrive. Examinations of the stool in cases of colitis should be dispensed with in favor of scrapings taken from the diseased area of the bowel. This can very easily be done with a blunt curette through a protoscope. In this manner we can more readily procure the organism.

Primary smears taken from the bowel while of no great value in the majority of cases will at times assist us in making a diagnosis. This is especially true in cases of gonorrheal proctitis, a condition that is a great deal more frequent especially in females than was formerly taught. I have seen a great many cases in women having a specific vaginitis. My experience has been that the proctitis is not of the intense or acute type that some writers have described. I have recovered the organism from cases that had little or no symptoms referable to the rectum or colon.

I just recently had two cases of rather peculiar appearing granular proctitis, passing moderate amounts of mucus mixed with pus and some blood that ran little or no temperature and which were classed as mucus colitis, that showed positive Vincents organism on direct smear and who cleared up promptly after several doses of neo-salvarsan and enemas of sodium perborate.

Ulcerative types of colitis may be due to amoeba, tuberculosis, or various types of germ life, the identity of which has not yet been fully determined. My experience is not in accord with that of some writers who maintain that a certain type of this ulcerative colitis is due to a specific organism in that we have been able to recover this diplococcus from cases that had no ulceration or symptoms of ulcerative colitis.

Tubercular colitis is usually a secondary infection from foci in the lungs and throat. The symptoms vary from very vague manifestations in the early stages to acute painful bloody diarrheas in the ulcerative state. The colon is usually attacked before the small intestine due probably to the rapid carrying of the organism through the small bowel and the presence of mixed infection in the colon. The diagnosis in early cases is made by finding the disease in the lungs or throat, excluding other types of infection in the bowel, and is clinched in finding the organism in scrapings from lesions in the bowel. The treatment

is mainly constitutional with the use of medicated retention enemas in the bowel. I have obtained some very satisfactory results from the daily administration of barium sulphate after each meal over long periods of time. In the severe ulcerative types which are nearly always terminal, palliative measures alone are indicated. I have never felt that cecostomy and appendocostomy, with through and through irrigations, were of any benefit either as a curative or palliative measure.

The treatment of all forms of colitis while specific in certain cases involves the general principles of the careful physical examination with the removal of all septic or toxic foci above, careful dietary regulation, and well appointed local medication in the form of colonic irrigations. We have had most happy results in treating inflammatory conditions of the colon by trans-duodenal instillations of various drugs. In this manner rather large doses of curative agents are given into the duodenum where their action is prompt and effective. We have used lugol solution, mercurochrome, gentian violet, acriflavine, methylene blue and yarten.

Proper cleansing and drainage is just as essential in inflammatory condition of the colon as in any other type of infection. The use of laxatives are not even a poor substitute for enemas in these cases. The use of barium sulphate and kaolin by mouth after meals has proved very encouraging. The use of barium was adopted because of the temporary improvement that was obtained in patients who took the barium for x-ray pictures. Barium and kaolin can be given in heaping teaspoonful doses three times a day over indefinite periods of time and appear to inhibit certain types of bacterial life.

The use of vaccine and non-specific proteins are often of value in assisting in the eradication of these infections. The diet plays a most important part. It should be well balanced and of a smooth type. The use of the so-called irritating roughages as bran, greens, spinach, lettuce, etc., should be prohibited. If the gastric secretions are abnormal they should be augmented or corrected as the case may be.

The patient should be impressed with the necessity of carrying out the treatment over long periods of time but with intelligent treatment and the hearty cooperation of the patient the largest percentage of the so-called chronic inflammatory conditions of the colon that are now considered as incurable can be readily relieved and the individual restored to health.

### 3. Parasites.

The increasing frequency of stool examination as a routine procedure in studies of the

gastrointestinal tract has awakened us to the prevalence of parasitic infection throughout the entire country. The shipment of fruits and vegetables in cold storage has ceased to confine this class of disease to tropical climates.

The commonest form of parasite, that is met within this locality, is amoeba histolytica. It is found in both the white and colored races and in all ages. The youngest case that we have seen was in a child three years old. She had a bloody diarrhea, typical ulcers in the bowel and large actively mobile amoeba were recovered from scrapings of the ulcers. It is often very difficult to demonstrate motility (and this is an only positive means of arriving at a diagnosis) of amoeba, if the patient has been guarded in his diet and has been taking medication to check his diarrhea. A negative diagnosis is often made of these chronic cases because no organisms are found in the stool. It is our procedure in examining a suspected case to have the patient discontinue the use of all drugs and to eat green vegetables and raw fruits until his diarrhea becomes active. We prefer this method to the one of active purgation with epsom salts. The tenesmus and cramping are controlled by the use of opiates preferably codiene. We then make direct scrapings through the proctoscope from the active lesions and immediately examine them by warm stages.

If the disease has been present for a long time it may be impossible to demonstrate the amoeba until the diarrhea has remained active for several days. We recently had a case of chronic diarrhea that was very suspicious of amoeba on protoscopic examination. After advising the discontinuance of all astringent or antiseptic medication and the liberal use of raw fruits and vegetables we examined him daily for the presence of the organisms but were disappointed for seven successive days. Finally, on the eighth day our efforts were rewarded by the finding of the largest and most active amoeba in our series. It is not uncommon for cases of amoeba to have other parasites associated with them in the disease process. The most common combination are amoeba and flagellates.

The cases of pure flagellate infection, while not so common, are very difficult to eradicate. These organisms live in the small intestine but are carried down into the colon by the increased motility that they excite. Here they produce even more severe lesions due to the presence of mixed infection.

The treatment of amoebic cases consists of placing our patients on a rather high protein diet with trans-duodenal instillation every three or four days of chiniofon or its specialties such as yarten and anyaodin. We also



give large doses of bismuth subnitrate by mouth and stovarsol tablets after meals. The patient is given inverted enemas of mercurochrome and yatren solutions daily. In the more obstinate cases we include the use of emetine hypodermatically. Since the introduction of the duodenal tube and its use as a method of trans-duodenal irrigation and the use of the inverted position for giving enemas, we feel that surgical drainage of the colon has become unnecessary. The treatment of the flagellate forms is very pains-taking and difficult as these infections are more resistant to treatment. We attempt to place the patient on a carbohydrate free diet and depend on our instillations into the duodenum of various antiseptics to eliminate these organisms. In my experience mercurochrome introduction in the duodenum has been more prompt in its action than some of the other drugs.

#### 4. Reflex states.

The colon is especially susceptible to reflex phenomena both from the standpoint of production and reception of stimuli. The innervation of the caecum, colon and rectum is most extensive and sends its fibers to ganglia scattered throughout the spinal cord, which in turn communicate with nearly all of the abdominal viscera. The intimate correlation of this innervation frequently tends to make it difficult to distinguish the cause and affect disorders, especially in border line cases.

Disease in the gall bladder, appendix and kidney acting through the vagus often produce spastic or irritable states in the colon and upper digestive tract, and, reversely pathology in the bowel acting through these same tracts produce referred symptoms to these viscera.

The segmental relationship of the gastrointestinal tract must always be kept in mind as disease anywhere along its course may be reflected through its entire length. No pathology in the digestive tract, however innocent it may appear, should be overlooked from the standpoint of its ability to produce reflex states.

Likewise gall bladder, uterine, kidney and vesical disease are very prone to express their symptoms in terms of reflex colon disturbances.

It is impossible to establish any method by which the exact offending member can always be identified, however, if we study the patient from the standpoint of an interdependent and intercorrelated body instead of a combination of separate organs we will do much to solve these perplexing problems. We will then be able to dispense with such vague terms as irritable colon and spastic colitis.

#### 5. Endocrine.

I fully realize that I am treading on very debatable ground in discussing the effect of endocrine disease in the production of disorders of the colon.

That there is a distinct relationship between the endocrine system and the gastrointestinal tract can not be denied, but unfortunately the results obtained by many investigators are so variable that we possess very little definite information upon which to base our diagnostic efforts.

Likewise our scientific methods to accurately determine the exact amount of dysfunction in these complex glandular states are so limited that most of our information must of necessity be obtained from clinical observations.

In thyroid disease we have a rather accurate method of recording the function of the gland and a basal metabolic rate is certainly indicated in vague colon disturbances. Experimentally, thyroid preparations excite the motility of the bowel and large doses provoke diarrhea. This is in accord with the observations of most writers that severe hyperthyroids have a tendency to diarrhea and constipation is prevalent among hypothyroids.

I have seen two cases of chronic loose bowel in women with hyperthyroidism that disappeared after removal of the gland. I have also obtained some benefit in constipation in hypothyroids by advising the use of thyroid extract. The extraordinary efficacy of therapeutically used thyroid hormone permits the trial of this therapy in certain cases of habitual constipation; even though there is no clear cut picture of hypothyroidism.

Neither literature nor experimentations reveal much regarding the gastrointestinal tract in pituitary disease, notwithstanding the fact that post pituitary extract injected hyperdermatically causes an increase in peristalsis. Some writers associate spastic manifestations of the colon with severe lower abdominal pain, in post adolescent bipolar pituitary insufficiency.

The thymus gland and the posterior lobe of the pituitary are supposed to stimulate motility of the intestines while the suprarenal gland, sex glands and the anterior lobe of the pituitary are thought to inhibit peristalsis.

Excessive sexual indulgence is often followed by attacks of rather marked constipation and spastic manifestations in the gastrointestinal tract.

Future experimental studies and clinical observations will do much to clarify and augment our present meager knowledge of the effect of the ductless glands on digestive disorders. As our knowledge in this avenue in-

ereases our tendency to employ such vague and meaningless terms as nervous indigestion, neurotic, colitis and functional diarrhea will be reduced to the vanishing point.

#### 6. Allergy.

Allergy is unquestionably clinically responsible for certain types of spastic and catarrhal colitis. Here again is a class of disorders in which the diagnosis must in the main be arrived at through clinical observation and experimentation, instead of exact laboratory methods.

While in certain cases the disturbance in the colon is only a part of a general picture of sensitization, I am convinced that I have encountered quite a few cases of "hives of the colon," in patients that had no other allergic manifestations.

The bacterial flora of the intestinal tract is quite easily influenced by various classes of foods and it is possible that a change in media may allow bacteria that are harmless under certain conditions to become active and produce allergic reactions. We have traced quite a number of irregularly occurring attacks of so-called acute serous diarrhea to food sensitivity.

In some instances the offending food or combination of foods is hard to identify while in other instances the patient states that "shrimp makes me sick every time."

In cases of allergy of the colon the patient may not have any symptoms or distress until the bolus has entered the colon. In this manner food eaten two or three days before the attack is forgotten and the patient and doctor wrongly indict a meal that is entirely innocent eaten just previous to the attack.

It is therefore necessary to consider the foods eaten two or three days before the onset of symptoms before drawing our conclusions. I recall a very interesting case in which the patient would have a severe headache with abdominal cramps and a loose bowel with passage of large amounts of mucus from eighteen to twenty-four hours after eating eggs. He had no other allergic symptoms but the reaction in the colon would recur each and every time he ate eggs or food containing eggs.

In studying obscure cases in which food allergy is suspected I frequently instruct the patients to "keep books" by recording daily over a long period of time every type of food that he eats and drinks and the exact beginning of his attacks.

In this manner we can go back over the records and ascertain if the same food has been eaten before each attack. The various suspected foods can then be tried separately and if proved offending be eliminated from the diet.

I feel certain that a more thorough consideration of allergy of the gastrointestinal tract, by the profession as a whole, will reveal in this phase of medicine the answer to many obscure and puzzling ailments which heretofore we have been unable to interpret and relieve.

Uniform progress in race betterment is a rather slow and tedious process and is attained only after prolonged, energetic and conscientious efforts.

I am sure that when the diseases of the colon are properly and thoroughly investigated, by the profession as a whole, from the standpoint of etiology and pathology and treated in a sane and scientific manner, the human race will experience a benefaction that has been rarely surpassed by the previous great discoveries in medicine.

### EPIDEMIC MENINGITIS, EARLY DIAGNOSIS AND TREATMENT\*

GEORGE GREGORY, M. D.

Versailles.

**Definition:** An acute inflammation of the meninges produced by the meningococcus.

Mode of infection, just how the organism reaches the meninges is as yet unknown even among Bacteriologists. This much is known that during an epidemic most so-called normal people in the vicinity carry a goodly number of the organisms on the mucous membrane of the nose and throat. Whether organisms on gaining a foothold spread by direct extension through the cribiform plate into the cranial vault is a matter of speculation, as is also the theory of infection by the lymph or blood stream. Accident no doubt plays a part in some cases since it is not unusual for this disease to develop following simple skull fracture. Blood cultures and the capillary hemorrhages show conclusively that blood stream infection exists in many if not all cases. But I do not believe we have any conclusive evidence that this is the primary infection.

**Incidence:** Sporadic cases occur every season, but meningococcal meningitis is a disease of importance only in the epidemic form, when an epidemic does occur it does not obey the common law of contagious diseases, as measles or chicken pox, that is, it does not spread from person to person by contact among supposedly susceptible individuals, on the contrary a number of children in remote parts of a neighborhood are quite likely to come down with the disease at about the same time. Rarely does more than one in a family contract the disease and rarely do nurses

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and doctors in attendance contract meningitis. Crowding and unsanitary conditions, as well as malnutrition seem to be very important factors.

**Symptoms:** Symptoms vary according to the severity of the infection, ordinarily the child will, if a child, have a slight cold with a sore throat then maybe some muscular rigidity, or maybe only soreness that is not observed by the mother. During this period household remedies for colds are tried, not until the child begins to vomit is the physician called, or even then the mother will be inclined to think that the vomiting is due to the castor oil she administered some hours previous. Frequently the physician is not called until the child has a convulsion or becomes semi-comatose. The doctor will note that the child is lying on its side, and though it will turn from side to side it will not lie very long on its back, the head will likely be drawn back just a little. If you turn the child on its back and raise the head off the pillow the knees will be raised by the patient at the same time, and the child will cry out in pain, this will occur generally even if the patient is semi-comatose.

Frequently after cartharsis the symptoms for a short while, may seem much improved. The child may want to sit up in bed or even get out and play, in such cases symptoms are vague. In one such case I was able to make a tentative diagnosis on posture alone, I shall have occasion to refer to this case again later.

Briefly the symptoms may be summarized as follows: cold with sore throat, with a temperature rather too high (101 to 104), severe headache, nausea and vomiting with transient diarrhea, soreness of the back muscles, especially the back of the neck. In more severe cases capillary hemorrhages may be seen over the body, and later the characteristic position of opisthotones.

**Diagnosis:** After three or four days the diagnosis is usually quite simple, but it is the early diagnosis that is important. So closely do the symptoms resemble those of other diseases that I have seen cases sent into hospitals, diagnosed acute tonsillitis, influenza, pneumonia, scarlet fever, acute gastritis, food poisoning, etc.

Early diagnosis frequently requires skill and considerable tact. During the first 48 hours Koernigs sign may or may not be positive. The head will not be much drawn, and perhaps not at all, but the neck is almost sure to be sore if not a little stiff. There is usually a pinched, unhappy expression that to me is very suggestive; and posture is an important factor in diagnosis. In the case of a child 14 months of age: the position in which it sat up in bed suggested the diagnosis to me.

The mother had not noticed that the child was sitting very erect. When I asked if the child usually assumed this position she said it did not. This stiff, erect posture was maintained when the mother held the child in her arms.

Not all physicians are equipped to do blood counts, and if they were the count would not be of great value. The white count may range from 15,000 to 30,000 with a high polymorph-count. Pneumonia would present much the same picture.

As soon as a clinical diagnosis can be made from history and physical findings, a diagnostic puncture should be done. (Technique for this procedure will be discussed under treatment.) Cloudy fluid under increased pressure is proof of meningitis. In suspected cases it is well to have serum on hand to be given while the needle is in place. Smears or cultures will now be done to determine the causative organism. A cell count of the fluid is of considerable diagnostic importance and may be done easily and quickly.

**Treatment:** Treatment of meningitis before the advent of serum therapy was purely symptomatic and the mortality ran as high as 70%; since serum has been used the mortality has been lowered to 20% to 50% of all cases. You are no doubt familiar with the serum placed on the market by some of the drug houses, and I suspect most of you have a choice among them, as I do. Freshness is an important factor regardless of the type of serum used.

**Technique for puncture and treatment.** The patient is placed on one side and local or general anaesthesia used as the case demands. If general anesthesia is used the respiration must be closely watched while the fluid is being withdrawn. The patient may stop breathing; if he should, flexing the neck will usually produce enough pain, even under anesthesia to start up respiration again.

When the anesthetic has been administered, a large area about the sacrum and lumbar vertebrae is painted with Iodine and later washed off with alcohol. The patient is now draped with sterile towels, etc. If local anesthesia is used, it is now applied over the site selected for puncture. This is usually the space between the spines of the fourth and fifth lumbar vertebrae. The physician and assistant should scrub as for any other surgical operation and wear sterile gloves and gown. The best possible aseptic technique should be employed. When you are ready to insert the needle, the thighs are flexed on the abdomen and the head flexed on the chest, this tends to spread the distal ends of the spinous processes. With the index finger of the left hand the point is selected and with

the right hand needle is pushed through the tissues directly in the mid line and is driven into the spinal canal, a distance of from 2 to 8 cm. from the skin depending on the size and age of the patient. Torsions of the body must be taken into account while doing the operation and the point of the needle directed accordingly. As the needle slips through the dura into the canal there will be a sudden lessening of resistance. The stylette is now removed and if your needle is in the canal, the fluid will spurt out. Failure to get fluid nearly always means that your needle is not in the canal. Though in severe, advanced cases the fluid may be so loaded with pus that it will take several seconds to run through the needle. Bloody fluid merely means that you have made a bad puncture. A clean puncture is essential since clot around the cord may prevent further treatment at this position.

Twenty to thirty c. c. of fluid or more may be removed depending on the amount of intracranial pressure. It is at this point that the greatest care should be taken since death has occurred from sudden release of pressure, by jamming the medula into the forearm magnum. If the pressure is markedly increased I think it is wise to reinsert the stylette every few seconds to stop the flow. When the desired amount of fluid has been removed the serum is introduced slowly the while observing strict surgical technique. I usually have the serum warmed slightly by the nurse, not enough, however, to render the serum inactive. If a treatment is given in a home I have some member of the family squeeze the tube gently for some minutes to warm the serum. As soon as the fluid has been instilled, the needle is quickly removed to prevent entrance of air and if there is no leakage, a piece of adhesive is placed over the wound to prevent possible leakage. A portion of the fluid is then taken to the laboratory where a cell count is done and on the first specimen I do a gram stain to determine the causative organism. A cell count is done on each subsequent specimen of fluid to determine the progress made in treatment. If the cell count drops a third each day I feel that the serum is active and that the patient is improving. There may be little or no clinical improvement for several days. Injections are given daily as long as the case demands. Some times the cell count will drop from 8,000 or more to one or two hundred after two or three injections but I think it is rarely safe to stop treatment under 4-6 daily injections. Then I wait for a day or two to observe the patient. I have given as few as four and in one case I gave as many as thirteen injections before the patient responded to treatment. Symp-

toms of increased pressure may continue for some days after treatment has been discontinued. If this becomes severe more fluid may be removed.

The technique I have described is simple and satisfactory but too much emphasis cannot be placed on the care taken in each step in the procedure.

I shall now present some case reports to illustrate some problems of diagnosis and treatment.

Case No. 1. Boy 10. Ill forty eight hours when I first saw him which was at night. Diagnosis made and spinal tap advised. Family wanted to wait till morning. Child conscious in morning and family refused intraspinal treatment, whereupon I left. That afternoon I was called by phone and implored to come back with the promise that I might proceed as I saw fit. The child was taken to hospital, punctured and fluid showed 8,000 cells; 12 injections were given, 9 of which were given before there was appreciable improvement. Child kept in hospital one month and discharged completely recovered.

Case No. 2. Baby, 18 months old. Had been vomiting for 48 hours at very frequent intervals, temperature rather high and restless. I saw this child in hospital and when I went into its room the child was sitting erect in bed with nothing to indicate its illness except the erectness of the posture. When I approached the bedside the child started crying. This made the examination of little value so instead of manipulation I asked the mother to take the child and hold it in her arms. It is a well known observation that a child so held when not feeling well will rest its head on the mother's shoulder. This child immediately tried and as soon as it got its head down it would have to jerk it up again. It repeated the effort two or three times. On this one observation I made the diagnosis and advised immediate treatment. The child was punctured that day and the spinal fluid showed 4,000 cells. After 4 injections the temperature was normal and the child apparently well; four days later the child was dismissed perfectly well and has remained so since.

Case No. 3. Child  $2\frac{1}{2}$  years of age. This child I saw in consultation on the third day of its illness. The child was comatose and showed marked opisthotonus. A diagnosis of meningitis made and a diagnostic puncture done at once and treatment begun. Cell count 7,000. Child taken to hospital; six injections were given and treatment stopped when cell count dropped to 200. Child discharged in two



weeks completely recovered.

Case No. 4. Boy, 17 years of age, sent to hospital for food poisoning. Diagnosis made and diagnostic puncture done and cloudy fluid obtained, cell count 7,000. This patient had a hemorrhage into left eye on admittance; seven injections were given and convalescence was slow but patient was discharged completely recovered.

Case No. 5. Boy, two years old. Seen in consultation. Child recovering from whooping cough. Diagnostic puncture done and cloudy fluid obtained, cell count 8,000; five injections given and temperature came down to almost normal. Had marked strabismus of right eye which showed some improvement before dismissal.

Case No. 6. Infant. Six months old; seen in consultation. Diagnostic puncture done to establish diagnosis, 17,000 cells found in fluid. Child died on second day of treatment.

Case No. 7. Child 3, was unable to eat lunch with family. This closely observing mother took the child's temperature and found it to be 101, late in evening temperature went to 104. I was called. The child had not vomited and there was no rigidity of muscles, and no physical findings in abdomen. Oil was given and the child's stools were foul and green and contained much mucous. The temperature by morning was normal but by night had gone to over 105, and the neck was beginning to be stiff. A diagnosis of serous meningitis was made and a diagnostic puncture done at midnight, the fluid was under great pressure but perfectly clear, no serum was given. The cell count was 4 by 7 a. m. Temperature normal and remained so afterward.

It seems in epidemics there are nearly always a few cases of serous meningitis and prompt relief follows release of pressure.

Eight cases in my series, seven recoveries.

#### DISCUSSION

**John Harvey, Lexington:** Dr. Gregory has made his subject so clear and so direct and has covered practically everything in regard to both the diagnosis and the treatment of epidemic cerebrospinal meningitis that there is very little to be added.

There is nothing that I can think of to add except to emphasize a few of the things which he brought out. One is the various diagnoses under which patients are sent to the hospitals. In his series of cases the diagnoses ranged from whooping cough to food poisoning. Those things speak for themselves. The possibility of diagnosing meningitis in the early stage, even before spinal puncture is done and the fluid observed, is a point well worth consideration.

Dr. Gregory calls attention to the necessity of using a fresh serum.

Another thing that might be worth speaking

of is that in certain epidemics, and perhaps in certain sporadic cases of meningitis, the serum of one manufacturer will be less effective than that of another. This is perhaps due to some slight variation in the strains of meningococci in the serum used. We have found that to be true in Lexington in a few cases, and in other towns as well.

As Dr. Gregory remarks, if there is no improvement after three injections of serum, he thinks it is well to feel that it is not accomplishing the purpose and it might be well to change the brand of serum used.

His treatment of the cases that he had I believe consisted in use of serum by the intraspinal route only. Whether serum should be given intravenously as well as intraspinally or not might be questioned. I know there has been some work done in one of the New York hospitals comparatively recently in an attempt to show that if the serum is potent for the strain of the meningococcus present, that the intraspinal route is sufficient, and usually one injection in twenty-four hours gives just as good results as more frequent injections. Certainly the recovery of seven out of eight patients in the series Dr. Gregory reports is a very excellent record.

**Ernest B. Bradley, Lexington:** Dr. Gregory has had a wonderful mortality rate in this small series of cases, much better than I have ever had in any series, much better, of course, than the average. The average mortality still runs from twenty to thirty or forty per cent. The cases that I have seen have been in adults, principally, and I think their mortality runs a little higher than in children.

If we make a tentative diagnosis of meningitis by the fever, stiff neck, mental symptoms, eye symptoms or what-not, or just simply by the stiff neck, or if we suspect epidemic cerebrospinal meningitis, the lumbar puncture should be done immediately. I think in every one of those cases where lumbar puncture is done immediately, whether the spinal fluid be cloudy or not, a dose of anti-meningococcic serum should be given. I have omitted to do that in some cases that after two or three days were found due to meningococcus, even in one where the cell count was low as thirty, with practically no polymorphonuclears. Occasionally the spinal fluid is not cloudy at first, and it is not uncommon to be unable to find the meningococcus in the spinal fluid on the first puncture. We can do no harm if the case happens to be one of serious meningitis, tuberculous meningitis or anterior poliomyelitis. Those cases that show petechiae have usually a septicemia, and the intravenous injection of anti-meningococcic serum should be done.

The work of W. W. Herrick, of New York, which was done at Camp Jackson during the

war was so convincing and his mortality was so much lower than the mortality rate of those who didn't use intravenous anti-meningococcic serum, that I think we should still prefer it in most cases, at least in those that show petechiae or evidence of septicemia. Of course I mean in addition to intraspinal use of serum.

As to the different kinds of serum, or the serums from different manufacturers, I think there is no doubt that sometimes the serum made by one firm will act better than that of another, and it is always my practice after giving the first dose of serum, unless the patient is better the next day, to change over immediately to another manufacturer's serum, even though I may go back to the first again, because while there are four main groups of meningococci that are used to immunize horses for the production of serum, yet there are quite a few strains that are different in those groups, and sometimes a meningococcic meningitis will occur in which the germs that are recovered belong to none of those groups.

In the last two years the epidemic that has gone over the United States has had a good many of those bizarre forms of meningococci, and I think for that reason this last epidemic has been more fatal than the previous ones that we had ten or twelve years ago.

**Robert L. Biltz**, Newport: After hearing Dr. Gregory's excellent results in curing meningitis, and comparing them with my own, I think the next case I have I will call Dr. Gregory in consultation.

One cannot stress too much the early diagnosis of epidemic meningitis, because the success of our treatment depends primarily upon the time at which we begin our treatment.

There are two signs that I should like to emphasize that are helpful in diagnosing meningitis, especially in children. One of these is the Brudzinski sign, that is when the neck is flexed, the legs are drawn up. I think this is one of the earliest signs of meningeal irritation that is seen in very young patients.

Another sign that I think is helpful is the intense irritability that accompanies this disease in children.

In picking out a serum that is potent, I believe that agglutination tests of the organisms obtained from the culture of the spinal canal should be made, testing them against the serum being used in treatment. This occasionally will help to prove whether or not a serum is specific for the organism that is infecting the spinal canal. Although this point has been questioned by some authorities, I think it is still important enough that we should give it some consideration.

Dr. Gregory has treated his patients every twenty-four hours, although we have been in the habit of treating our patients every eight to

twelve hours. I think even though serum is not given oftener than every twenty-four hours occasionally it is advantageous to at least do a spinal puncture and drain the canal. As you know, the spinal fluid is re-formed very quickly, and by draining the spinal canal you get somewhat the same effect as evacuating an abscess; that is you drain off the infected material.

I believe also that intravenous treatment should be used in most cases, the frequency with which we see skin manifestations would suggest the probability of a blood stream infection and it would be to the advantage of our patients in practically all cases to give the serum intravenously as well as intraspinalously.

I should like to mention a case that I saw with Dr. Shaw of Alexandria just two weeks ago. The patient was a girl, age 22. On Sunday when he saw the patient, she gave a history of coming in from a game of tennis on the previous day and felt a tingling sensation in the fingertips, which later spread to the toes. On examination he found a mitral insufficiency which had been present for several years, dull redness of the fingers and toes, and two small subcutaneous hemorrhages on the sole of one foot. These findings led to a primary diagnosis of a blood stream infection. A blood culture was taken and much to his surprise when the culture was returned, the laboratory reported meningococcus, but at this time the patient had absolutely no meningeal symptoms.

Bearing this in mind, the anti-meningococcus serum was administered intravenously and repeated daily. Spinal puncture was purposely avoided, to prevent contamination of the spinal canal which appeared not to be infected. During the illness the temperature ranged from 101 to 105.

However on the seventh day of her illness the patient became comatose and developed definite meningeal symptoms. Spinal puncture revealed cloudy spinal fluid under pressure and stained smears were positive for meningococci. Anti-meningococcic serum was administered intra-spinously at eight hour intervals but without results. The patient died on the eighth day with cardiac failure and pulmonary oedema. This case demonstrates the possibility of blood stream infection with delayed involvement of the meninges.

**C. L. Sherman**, Millwood: I should like to ask Dr. Gregory how to make this cell count. They say make it just like a white blood count. If you make the count like that, how do you get a count as low as four? By making a white blood count we draw the blood up to five, then diluting it with acetic acid solution and counting the full nine squares, if you find one cell in the nine squares and multiply that by 200 and divide by 9, you see you are bound to get more than 4 cells, so it must be that I am making a



mistake in how I make the count.

Another point I wish Dr. Gregory would bring out in his closing remarks is the differential symptoms of a poliomyelitis and a meningitis. Just now I have a little girl on whom I did not do a spinal puncture; however, owing to the fact that I just saw her one time and I was coming to this meeting, but she had had a temperature of 101, I think, for about four days, and they called me to see her. She had the rigidity of the neck, the Kernig sign, but she had no temperature and had not had for two days. She had no headache. She was perfectly rational. Yet she had that stiffness of the spine, and on bringing up the limbs she would complain of pain. She had painful attacks, complaining of pain in the abdomen and pain in the hips, and vomited occasionally. On examining her carefully I thought I found that there was some paralysis of the left foot. In leading her across the floor (she could not walk of her own accord), it seemed there was some paralysis of that foot, and the knee jerks when tested repeatedly were absent on that side, which rather led me to diagnose the case as poliomyelitis or infantile paralysis.

**George Gregory,** (In closing): I want to thank all of you for your discussions and for staying while I read my paper. There seems to be considerable wondering on your part as to why I didn't use intravenous medication as well as intraspinal medication. That is simple. Most of these were charity cases and the county was reluctant to buy the extra serum. I used intraspinal medication because I thought it was the only thing I could do under existing conditions.

In counting the cells I don't use a pipette. The counting chamber comprises nine-tenths of a cubic millimeter. I use undiluted spinal fluid and count all nine squares, if I can, if they are not too thick, and that gives me nine-tenths, and then I add one-tenth and that gives me the number of cells per cubic millimeter, using no dilution at all.

In the matter of anterior poliomyelitis, I don't feel qualified to discuss that. I had one patient whom I saw in consultation, and I did a diagnostic puncture to rule out meningitis. I didn't mention it in this series. The fluid was not under increased pressure; it was perfectly clear. It dropped out about one drop every two seconds. The child was sent home and I didn't hear anything more from it for three or four days until I found out that another physician had been called in and the child was paralyzed in one or both extremities and died that day. I tried to reach the family by phone to get a necropsy, but was unable to do so, and I felt as though very likely that child was suffering from anterior poliomyelitis. Whether it was I certainly do not know. I don't know enough about poliomyelitis to discuss it adequately.

## HERPES ZOSTER OPHTHALMICUS IN A NEGRO\*

SAMUEL G. DABNEY M. D.

Louisville.

Herpes zoster ophthalmicus "is a neuropathetic affection having its cause in degeneration of the ganglion of Gasser, or of the branches of the trigeminus, or of both. Any of the branches of the fifth pair may be thus affected, and the eruption is localized by the distribution of the diseased nerve-twigs. It therefore happens that vesicles may occur on the eyeball as well as upon the skin, and both ulceration of the cornea, acute conjunctivitis and acute iritis may take place. It may even cause loss of the eye by irido-cyclitis. When there is an eruption on the cornea its surface is markedly anesthetic."

"The disease may take place at any age. It is very apt to be regarded as simple erysipelas, but from this it may be discriminated by the intense neuralgic pain following certain nerve-twigs, by the strict localization of the skin trouble, and by the vesicles. The lesion may extend downward to the tip of the nose, or upon any part of the distribution of the trigeminus."

**Case Report:** The following case of herpes zoster ophthalmicus may possess sufficient interest to be worthy of record. It is the first case of the kind I have ever seen in the negro race, but have encountered quite a few in white people.

According to the history, four or five days previously severe pain began in the right brow, and shortly thereafter numerous vesicles appeared in that region. The eruption soon extended downward along the right side of the nose almost to the tip. Examination disclosed several typical vesicles or blisters on the brow, a small one near the tip of the nose and another at the inner canthus. There was no corneal ulceration and no iritis, but pain was severe and the eye was markedly congested. It is quite possible other eye complications will develop.

The diagnosis in this case was rather easily made. The man had no visible discoloration of the skin as seen in the white race. He simply had typical ulcers or blisters that will form ulcers in the usual situation.

The best article I have seen recently on this subject was read by Dr. Lloyd of Brooklyn before the Academy of Ophthalmology and Oto-Laryngology a few months ago. He thought it invariably involved loss of all useful vision. I believe he is wrong in that, because I have seen several patients with herpes

\*Read before the Louisville Medico-Chirurgical Society, January 23, 1931.

of the cornea who recovered with impaired but useful sight. I refer to Dr. Lloyd's paper particularly because he used the x-ray in the treatment of herpes zoster ophthalmicus with or without glaucoma and with corneal ulcer. It relieved pain.

These cases are not very common. In the negro I have mentioned there was no discoloration of the skin such as seen in white people, otherwise the disease was perfectly characteristic. There was marked anesthesia of the cornea.

### DISCUSSION

**Wm. E. Gardner:** I believe we are all in agreement that herpes is always due to a ganglionitis, and usually involves the ganglion of the posterior roots of the spinal nerves, as in cases of herpes zoster or what is commonly known as "shingles." In Dr. Dabney's case there was involvement of the gasserian ganglion particularly as the ophthalmic division of the trifacial nerve was affected.

The question arises here whether or not we might expect to find the changes in the spinal fluid which have been reported in other cases, inasmuch as there is only a unilateral lesion in this particular case which may be due to disease of the gasserian ganglion itself, and might not be a part of a more generalized infection or toxemia which is probably the case in other forms of herpes. I think one might consider the possibility of a neuroma or other neoplasm in association with the gasserian ganglion in the case reported by Dr. Dabney, although in the absence of signs of increased intracranial pressure I doubt if there is sufficient ground for such an assumption.

This report has been of more than average interest to me, as most of Dr. Dabney's cases are.

**Morris Flexner:** Early in 1926 I read a paper before this society (see Kentucky Medical Journal, August, 1926) on "The Herpetic Viruses and Encephalitis," in which a fatal case of herpetic virus encephalitis was reported. The patient had typical herpes zoster involving the distribution of the second, third and fourth left intercostal nerves, accompanied by terrific pain, exhaustion and later became disturbed mentally, with picture of encephalitis. Study of this case indicated a definite connection between herpes zoster and the central nervous system. Attention was called to the experimental work of Goodpasture, Flexner and others on herpes zoster, showing that the disease is practically always fatal to inoculated rabbits. Unfortunately, in the case I reported, we were unable to secure permission to make an autopsy, which might have thrown some further light on the subject.

**Samuel G. Dabney** (in closing): Anesthesia of the cornea is the key to the situation, in cases of herpes zoster ophthalmicus, so far as future impairment of vision is concerned. There is

great disturbance of the nerve supply which means an enormous increase in danger to vision because of the corneal anesthesia, disturbing the nutrition and making foreign bodies unperceived by the patient.

The author quoted in my report presented a very interesting article on this subject. He referred to the connection between herpes and the central nervous system. He stressed roentgen-ray for relief of pain, and keeping the eye covered for a long time. Anesthesia of the cornea in these cases is not a temporary affair, it is permanent or at least of several years duration.

### BOOK REVIEW

A PRACTICAL TREATISE ON DISEASES OF THE DIGESTIVE SYSTEM—By L. Winfield Kohn, M. D., F. A. C. P. Formerly assistant in the Gastro-intestinal Clinic, Johns Hopkins Hospital, Baltimore, Md. Present chief of Gastro-intestinal Clinic, Lebanon Hospital, N. Y. City, etc., etc. Complete in two Royal Octavo volumes of 1125 Illustrated with 542 Engravings. Bound in Extra Cloth. Price, \$12.00 net. Published by F. A. Davis Co., Philadelphia, Pa.

In preparing this work the author had in mind the requirements of the physician engaged in the practice of general medicine.

Following a brief chapter on anatomy and histology there is a complete concise consideration of the Physiology of the entire digestive tract—mouth, esophagus, stomach, intestines, liver and bile tract, pancreas and peritoneum—with 61 original illustrations.

The chapter on Fluoroscopy and x-ray—really a book in itself with 87 original diagrams illustrating characteristic and distinctive x-ray features deals with interpretations and will be most helpful to all who are interested in x-ray diagnosis.

In Chapter 20, "Dietary Considerations," the author discusses food constituent make-up, fuel value, vitamin character, etc. Duodenal and Jejunal Feeding, Nutrient enemata, Subcutaneous and Intravenous Feedings are included. The indicated diets for each disease are given.

Chapter 21, Therapeutic Considerations presents all forms of treatment such as Gastric instillation, and lavage, duodenal instillation, biliary drainage, de Rivas' Intrastestinal Thermal Therapy, rectal enemata, and colon irrigation, also various mineral waters employed and their indications. Diathermy, x-ray and Grenzstrahl therapy are included. A medical formulary concluding the chapter on treatment will be valuable for quick reference as it gives several formulas for each disease with their indications.

Parasitic diseases of the alimentary tract is an important chapter.



## WOMAN'S AUXILIARY

### ANNUAL MEETING FOR JEFFERSON

The Woman's Auxiliary to the Jefferson County Medical Society held its regular March meeting with a luncheon on the roof garden of the Brown Hotel, with Mrs. L. W. Neblett, first vice-president, presiding in the absence of the president, Mrs. John K. Freeman, who it was regretted, could not be present on account of illness. Much interest and enthusiasm was shown by the sixty-two (62) members who attended this meeting both during the entertainment and business programs. During the luncheon two auxiliary members, Mrs. J. Carr Ray, and Miss Thelma Ogden, rendered exquisite solos. The Auxiliary is to be congratulated on having such talent in its midst.

An event of unusual concern was a review of Mrs. S. C. Red's book, "Medicine Men of Texas," given by Mrs. J. N. McCormack. In her own inimitable manner Mrs. McCormack told of the primitive cure by herbs of the Indian Medicine Man and traced the history of Texas through its doctors. When Mrs. McCormack finished everyone expressed her desire to read this book.

Mrs. Harry Venable was forced to relinquish her position as chairman of the Membership Committee to Mrs. J. Duffy Hancock who then gave her report of the February membership drive. Mrs. Hancock reported twenty-one new paid-up members with a promise of fifty more women who said that they would join during the ensuing year. Mrs. O. H. Kelsall was awarded a prize for securing the largest number of paid-up new members.

Mrs. C. G. Arnold, chairman of the Sewing Unit, gave a most inspiring report of the work her group had done. Twenty-four baby gowns and twenty-four baby bands had been completed and returned to the hospital from which the material was secured. This sewing unit meets once a month from 10:30 a. m. 'til 3 p. m. at the home of some member. The formation of this sewing unit has not only been successful but it has helped promote acquaintanceship among the doctors' wives, one of the objects of the Auxiliary.

Mrs. W. E. Fallis, chairman of the Study Group, reported that very worthwhile papers were being read and discussed at the study class meetings, and that the number of meetings had been extended to make a total of nine instead of eight as previously announced.

Mrs. S. C. McCoy, Hospital Chairman, continued with her usual wonderful work at our local institutions. On Valentine Day Mrs. McCoy sent valentines to the children's Free Hospital. Mrs. McCoy also offered the use of her home for a card party to help raise money to swell the treasury of our local auxiliary.

Among all reports made none could have been

of more vital interest than that of Mrs. Hugh N. Leavell, chairman of the Mayor's Committee. Mrs. Leavell stated that her committee had meetings once every month and that they had secured an additional nurse to help care for the pre-mature babies at the City Hospital, and since her services had been acquired the death rate had considerably lessened among these babies. Mrs. Leavell's report told of the over-crowded conditions in the obstetric ward, and also the formation of the diet kitchen from two unused rooms. Clean and sanitary conditions at the hospital made the life of the intern very cheerful and happy.

Mrs. W. A. Onderdonk, State Radio Chairman, announced that Mrs. G. G. Altman has accepted the Chairmanship of this work for Jefferson County. Mrs. Altman will be assisted by Mrs. J. Hunter Peak. The programs are given at 11 o'clock every Thursday morning.

Mrs. Walter I. Hume, Hygeia Chairman, told of a child's magazine, "Health Land," that could be secured with a subscription to Hygeia and urged the members to help increase the circulation of these valuable magazines. Mrs. Hume suggested that a year's subscription to Hygeia would make a suitable present for the new mother instead of the usual gift of flowers.

Mrs. M. C. Baker, Secretary, read the resolutions on the death of our dear member, Mrs. W. F. Boggess, whose untimely passing away has left a void that cannot be filled.

Mrs. D. A. Bates, chairman of the Nominating Committee, submitted the following names for the new officers and they were unanimously elected:

President—Mrs. C. G. Arnold.

First Vice-President—Mrs. W. E. Follis.

Second Vice-President—Mrs. Harry Venable.

Third Vice-President—Mrs. W. A. Onderdonk.

Fourth Vice-President—Mrs. F. Parks Ogden.

Secretary—Mrs. J. Duffy Hancock

Treasurer—Mrs. J. S. Lutz.

Parliamentarian—Mrs. Philip Barbour.

Plans for the Silver Tea to be given at Mrs. Geo. A. Hendon's home some time in May for the benefit of the Jane Todd Crawford Memorial Fund, had not yet been completed, but members will be notified later by the telephone committee.

After reading the rules of the State Contest, the meeting adjourned to meet again in June.

MRS. O. H. KELSALL,  
Publicity Chairman.

PANORAMIC VIEW OF THE WOMAN'S  
AUXILIARY TO THE A. M. A. IN  
FOUR ARTICLES

2. North Central States.

MRS. JAMES BLAKE,  
Hopkins, Minnesota.

According to the Constitution and By-Laws of the Auxiliary to the American Medical Association the Organization program is carried on by the active work of the Vice-Presidents. Mrs. Southgate Leigh of Norfolk, Va., is first Vice-President and automatically Chairman of Organization. Due to her location on the map the Second Vice-President finds herself interested in the destinies of the North Central group of states.

Looking backward, with pleasant memories to Detroit, and forward with delightful anticipations to Philadelphia we find this group of states all doing something of common interest.

In the January Journal of the Indiana Medical Society, the Auxiliary President stresses the importance of more constructive work on the part of her organized county groups. "Physicians' wives," she says, in her New Year's address, "hold an enviable position in being privileged to have a part in a world-wide health program, and I would urge every physician's wife, to bring before other women dependable knowledge, and a just appreciation of the real spirit and purpose and actual achievements of the medical profession." So from Indiana we know we are to have constructive work during this year. Physicians as a class are not prone to participate in legislative matters but when four distinctly separate bills, which affect the profession, directly, are presented during one session of a State's Legislature, it is time to be up and doing.

Such is Indiana's situation this year and the doctors of the Seventh district have thought it worthwhile to **instruct** their Auxiliary members on these subjects that their influences may be **properly** used. The Indiana Journal never fails to give the Auxiliary space, and it is little wonder the Indiana women are up and coming, when they have such Editorial Notes to enlighten and guide them in their constructive program work, as one finds in this same Journal.

Missouri is in a very healthy condition. We find that Mrs. A. B. McGlothlin, the President-Elect of the Woman's Auxiliary to the American Medical Association, will attend President Hoover's White House Conference for Child Health and Protection to be held in Washington, D. C., February 19 to 21. Mrs. G. H. Hoxie, the President for last year, will also attend the White House conference.

Mrs. A. W. McAlester tells us, the women of Missouri are finding the Study Envelopes, published by the Education Committee of the Wo-

man's Auxiliary to the American Medical Association, most interesting and instructive. The studies on "Common Defects in Children," and on "Diphtheria," "Small Pox" and "Typhoid Fever" were recommended by the Department of Health in the Missouri Branch, National Congress of Parent and Teachers for use on Parent-Teacher programs. Eight hundred copies of each were distributed for use in Parent-Teacher Units. Three hundred were requested and supplied for use in Parent Education classes. Requests are constantly coming in for additional copies of the studies for use by teachers and Parent-Teacher Units. The Department of Public Information of the Extension Division of the University of Missouri is including these studies in its suggested programs for clubs in the Missouri Federation of Womens Clubs, and P.-T. A. programs. This department requested back numbers of Hygeia for use in such programs. Three hundred copies of Hygeia were supplied by women in the state and by the circulation manager and are being extensively used in club programs. The Missouri Chairman of Public Relations is planning to have a copy of each of the studies, "Common Defects in Children," and "Communicable Disease Control," sent to each county school superintendent in the state. Several of the County Auxiliaries are using the study envelopes in their programs.

Mrs. M. P. Overholser of Harrisonville, Mo., has been appointed chairman of Public Relations in the Missouri Auxiliary. This Auxiliary maintains a scholarship for a medical student, per capita quotas being assigned to each county Auxiliary.

They also have sent in 30% of the total number of Hygeia subscriptions recorded from all Auxiliaries from January 1, 1930, to January 1, 1931. Some county Auxiliaries provide Hygeia for all their teachers. Among these are Buchanan, Gentry and Lafayette. Cape Girardeau County Auxiliary has just finished paying a \$1,000.00 pledge to a hospital in the city and is now ready for another kind of work. They are a live group and certainly work hard to be able to accomplish so many wonderful worthwhile things.

Kansas is slowly getting a few things accomplished. A world-wide depression has rendered prophets quite fameless abroad as well as at home, but the doctor's wife in Kansas is coming into her own, and we prophesy that the Auxiliary will climb to the top due to the indomitable spirit of the leaders in that state.

In Illinois the motto might well read, "Builders we are, and builders we must ever be, Builders, not in stone that shelters life, but builders in life." We find good constructive programs of well-balanced educational value, we find a Journal ever ready to broadcast Auxiliary news, and best of all we find a healthy Organization



line-up, and an Advisory Board from their Medical Society. Several of their county groups are having their members get busy with the "Health Audit Program."

One project of worthy mention comes from Vermillion county on the Eastern boundary of the state. The county Auxiliary put on the Health Institute in Danville last November. A member from every agency in the county working out any kind of a health program, was included in the personnel of the speakers. It was for just one day, but it was worth 365 as a rouser for Auxiliary work. It really was sort of a Christmas Seal Campaign opening, a get-together of Club Women, and P.-T. A. groups in the county. And what a wise idea for a Medical Auxiliary to have the head lines in the plans for such a "Health Day."

Wisconsin, Iowa and South Dakota are among the latest States to join the National Auxiliary. Organization is the key note for their work, and the National Study Envelopes are offered as program material. Right now if the modern doctor's wife needs to get one thing more than another from her organization, it is the knowledge of what is going on in this world; especially the world of medicine. Women are discriminating more carefully in the clubs they are joining. They are asking what membership will mean to them, what they will get out of it. For that reason the subjects for study should be more carefully chosen, and the roll call should be made to count for something more than jokes and quotations from forgotten poets. It isn't a pleasant feeling for a busy mother who rides miles to a meeting to say when it is all over—"I can't say I know any more now than when I started." And so we find these three states getting themselves established on a firm foundation, with the National program envelopes scattered far and wide to aid and encourage Auxiliary members, already in, and prospective members.

Montana and North Dakota are debating pro and con but as Mrs. Hoxie said in her Detroit report—"I believe it will be a mistake from now on to organize a new state, unless it appears reasonably certain that there is interest enough among the doctors who want the Auxiliary, so they will foster it and stand back of it." And so we leave Montana half hearted about forming an Auxiliary, and North Dakota in the air.

We find Michigan giving intelligent co-operation with state and county officials. Women like men are interested in the improvement of civic affairs and healthful living and are realizing that they need to be armed with a definite knowledge of health laws and public health practices.

Minnesota the North Star State, has had a busy and successful year on organization. The President and Organization chairman have visited over the state and planned meetings and edu-

cational programs with many county groups. In October the International Medical Assembly met in Minneapolis, and at this time the Hennepin County Auxiliary celebrated its twentieth anniversary, by being hostess for five days to the visiting doctors' wives. A great many social affairs and an educational day, which included a speaker on public health, were features. Hennepin county is having a year with a definite program. Each month a speaker is scheduled, and one meeting during the year is reciprocity day and each Auxiliary in the state is invited to send visitors. This group features Philanthropic work for T. B. patients at Glen Lake and do much for the library at the Sanatorium. They have helped the Medical Society furnish their library and clubrooms spending \$1,000.00.

Ramsey county does much the same work. They have a scholarship fund for medical students. St. Louis county is noted for work in the public relations field. The State Medical Journal gives a page to Auxiliary news. One of the other counties takes care of a nurse's scholarship. The Minnesota Auxiliary has a splendid advisory board and a page in the State Journal. The president will be one of the speakers on the program for the annual conference of Secretaries of the Component Societies of the Minnesota State Medical Association, to be held in St. Paul the first week in February. This is the first time the Auxiliary has been asked to take part in this annual affair. Mrs. Hesselgrave's talk will be, "Uses of the Auxiliary."

And so closing my review of the work of the North Central Group of states may I say again: Builders we are, and Builders we must ever be Builders not in stone that shelters life, but Builders in life itself—ever remembering the future of the world for generations to come depends upon what we **think** and **will** and **do** today.

#### CALLOWAY COUNTY MEETS

The Woman's Auxiliary of the Calloway County Medical Society met last quarter at the New Nation Hotel, Murray, Ky.

The membership had dinner with the doctors at 6 o'clock, after which they retired to an appointed room for their session, with Mrs. E. B. Houston, county president, presiding. Three lessons of the Kentucky Health Laws course were presented.

Two members, Misses Dela and Bessie Outland, were added to the enrollment.

The out-of-county guests were Mrs. V. A. Stilley, councilor of First district, Benton, Ky., and Mrs. W. A. Washburn, also of Benton.

#### JEFFERSON COUNTY ACTIVE

In addition to its regular quarterly luncheon and business meetings, the Woman's Auxiliary to the Jefferson County Medical Society assem-

bles twice a month, once to attend a study class, and the other time to sew for the various hospitals in Louisville. Much enthusiasm is shown at both of these meetings.

Mrs. W. E. Fallis, chairman of the study group, has arranged a series of very interesting and enlightening subjects for the members. More than fifty women are enrolled for these classes. In February Mrs. J. D. Allen read a very instructive paper, entitled "Foundation and Growth of Bacteriology" which was received with much concern by all who were present. The other subject, by Mrs. O. H. Kelsall, was "Recognition and Control of Epidemic Diseases," and this paper explained Walter Reed's discovery of the mosquito that carried yellow fever.

At the conclusion, Mrs. S. W. Bates, Current Events Chairman, read clippings which conveyed much information to every one there.

MRS. O. H. KELSALL,  
Publicity Chairman.

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### BOOK REVIEW

THE TREATMENT OF CHILDREN'S DISEASES WITH SPECIAL FORMULAS AND DRUGS FOR CHILDHOOD, AND A SHORT DIAGNOSTIC SUMMARY OF EACH CLINICAL PICTURE—By Prof. Dr. F. Lust, Director of the Children's Hospital, Karlsruhe. Authorized translation of the Sixth German Edition with additions by Sandor A. Levinsohn, M. D. Associate pediatrician to the Barnert Hospital, Paterson, N. J., Attending Physician to the Daughters of Miriam Orphan Asylum, Clifton, N. J. J. B. Lippincott, Publishers, Philadelphia and London.

Many pediatric text-books and a great number of other books have been published which deal with the general subject of diseases of children. It is surprising, however, that so few books have appeared on treatment, in what has been called the "therapeutic specialty." The practicing physician will admit the need for such a book, yet there is scarcely a single volume in English which deals purely with treatment of diseases of children which can make any claim to completeness.

This book, which is an authorized translation of the sixth German edition, is an attempt to meet this need. The emphasis has been placed almost entirely on treatment. Only the most reliable methods for handling each condition are described, and only those methods are included with which either the author or translator has had personal experience.

Each disease is introduced by a short diagnostic summary which seeks to recapitulate

the salient features of each clinical picture in the form of a short sketch. I believe that this should add to the practical value of the book, providing as it does, a quick and ready resume of diagnosis and treatment.

Little space is devoted to the diseases common to the practitioner of internal medicine, whereas those diseases which are more rare, or which are peculiar to childhood are discussed in greater detail.

The translation differs in certain respects from the original German edition. These changes have been made to conform more with accepted American ideas. Such changes, for example, will be found in the chapters on Diabetes, and on Vaccination. Our conception of the proper dosage of tetanus and diphtheria antitoxin is also quite different from the European, and the text of the original edition has been altered accordingly.

Other more or less extensive changes from the text of the sixth German edition, are based on additional notes furnished by Prof. Lust. These express his latest views on matters in which opinions have changed rapidly during the last year or two. Such chapters, for example, are those on acid-milk mixtures, milk-free feeding, treatment of rickets, pernicious anemia, asthma, bronchopneumonia, coeliac disease, spasmophilia, scarlatina, and congenital syphilis.

The original German edition is based on lectures delivered at the Heidelberg Clinic. I have included ideas, methods and formulas derived from other European clinics, such as Leiner's, Pirquet's and Knofelmacher's in Vienna, and Finkelstein's in Berlin. Where American authors have suggested methods which have proven useful, I have not hesitated to include them, giving credit where due, whenever possible.

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A PRACTICAL CLINICAL LABORATORY DIAGNOSIS—By C. C. Bass, Dean and Professor of Experimental Medicine, Medical Department, Tulane University, New Orleans, and Foster M. Jones, Assistant Professor of Medicine and Director of the Laboratories of Clinical Medicine, Medical Department, Tulane University. The Williams and Wilkins Co., Publishers, Baltimore. Price \$7.50. Third Edition. Completely Revised.

This book is a practical laboratory guide for daily routine duties, such as those examinations that are useful in the ordinary, everyday practice. The best, simplest and most practical lists are given. It contains 134 black and white textual figures and 20 plates, 9 of which are in colors.



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1931 MEETING LEXINGTON

## COUNTY SOCIETY REPORTS

**Bourbon:** The Bourbon County Medical Society held its regular meeting in the County Court Room, in Paris, on February 26, 1931.

Meeting was called to order by Dr. J. A. Orr, President. Members present: Drs. J. A. Orr, W. C. Ussery, H. A. Miller, George Rankin, J. D. Calhoun, H. B. Anderson, C. G. Daugherty and M. J. Stern. Visitor, Dr. B. N. Pittinger.

Dr. Ussery reviewed an article on "Fever of Unknown Origin," based on a study of cases in the Peter Bent Brigham Hospital. Discussed by Drs. Pittinger, Daugherty, Miller and Orr.

The Secretary reviewed a paper on "Brain Abscess as the Otologist's Problem." Discussed by Drs. Pittinger, Miller, Calhoun, Orr and Daugherty.

The meeting was then adjourned.

MILTON J. STERN, Secretary.

**Carlisle:** The Carlisle County Medical Society met at Hotel Victor Arlington, Ky., on the evening of March 3, 1931, at 6 o'clock.

Dr. E. E. Smith, President of the Society, presided. The following doctors were present: Meritt, Moss, Peebles, Smith, Harrell, Payne, Dunn and Burrow.

After partaking of the bountiful dinner, an interesting paper was read by Dr. W. F. Peebles, on "Cholecystitis," and fully discussed by all present.

Dr. J. F. Dunn read a paper on "Pancreatitis," and reported a very interesting case.

Dr. J. F. Harrell was elected to membership in the Carlisle County Medical Society by unanimous vote.

The Society adjourned, to meet in June.

R. C. BURROW, Secretary.

**Franklin:** The Society met in regular session at 12 o'clock, noon, in the writing room of the Capitol Hotel on March 5, 1931.

The meeting was called to order by the president, Dr. O. D. Demaree. Minutes of the February meeting were read and approved.

Members present were: Drs. Ginn, Coblin, Budd, Stewart, Roemele, Travis, Patterson, Jackson, Demaree, Coleman, Minish and Youmans.

Dr. Travis had charge of the program and introduced Dr. E. L. Henderson of Louisville, who read a most interesting paper on "The Abdomen With Reference to Acute Suppurative Appendicitis," bringing out his various methods of diagnosis and treatment. Dr. Henderson's paper was freely discussed by most of the members present.

Dr. L. T. Minish offered the following resolution which was adopted by the Society:

"In as much as the King's Daughters' Hospital of Frankfort, will receive through the will of one of our late citizens a bequeath of \$25,000 in cash and valuable real estate located in South

Frankfort, and whereas, the present hospital is inadequate to meet the present demands and badly located. Be It Resolved that we, the physicians of the Franklin County Medical Society and members of the hospital staff, go on record as endorsing a movement to erect at as early a date as possible a new hospital on a new site, a building that will be adequate to take care of the present and growing demands of this city and community.

The Society adjourned to the hotel dining room for lunch.

C. E. YOUMANS, Secretary.

**Harlan:** The regular February meeting of the Harlan County Medical Society was held on the 21st at noon in the basement of the Christian Church at Harlan. We were favored by a paper, "Low Back Pain" by Dr. Orville Miller of Louisville. The discussion was opened by Dr. J. W. Nolan of Harlan.

Dr. Clem Hill of Louisville gave a paper on "The Role of the Ureter," the discussion being opened by Dr. Harry Linden of Harlan.

The following members and visitors were present: Dr. Petty, president; Drs. Riley, Riddell, Cawood, Buttermore, Diefendorf, Parks, Aiken, Paynter, Smith, Beauchamp, Nolan, Linden, McCull, N. S. Howard, Nash, Ball, Rowland.

M. M. RIDDELL, Secretary.

**Russell:** It is with profound regret that we announce to the Medical Profession the death of Dr. W. G. D. Flanagan of Jamestown, Ky. He was a great practitioner of medicine, kind, painstaking and an accurate diagnostician.

Dr. Flanagan was born and reared in Russell County. He graduated from the Louisville University of Medicine in the year 1890, after which he returned to his home county, took up his profession and there remained until his death. He was known as the friend of the poor as well as the rich.

Dr. Flanagan was a member of the Russell County Medical Society, for several years, he served as president and later as health officer. He departed this life at the age of 65. He leaves us richer for having known him, for he was always lovable and considerate. He never failed to express his convictions and to impress his ideals upon his friends.

Dr. Flanagan's memory is gratefully recorded in the archives of the profession which he honored and will serve as an incentive to those of us who are left to do more effectively those things which are yet to be done by his helpers who are left behind.

The doctor is the flower of our civilization and when that stage of man is done with, only to be marvelled at in history, he will be thought to have shared but little in the defects of the period, and to have most notably exhibited the

virtues of the race.

J. S. ROWE, M. D.

Russell Co. Health Officer.

**Muldraugh Hill:** Meeting Thursday, April 9, 1931, 10:30 a. m., Elizabethtown, Ky. Program:

1. Business session.
2. "Vaginal Abnormalities," Dr. R. T. Layman, Elizabethtown, Ky.
3. "Diagnosis and Treatment of Common Skin Diseases," Lantern slides, Dr. Robt. Kelly, Louisville, Ky.
4. "Control of Scarlet Fever," illustrated by moving pictures. Dr. J. L. Jones, State Board of Health.
5. "Blood Transfusion," Dr. H. M. Weeter, Louisville, Ky.
6. "Post-Partum Hemorrhage," Dr. E. B. De-wees, Caneyville, Ky.
7. "Complicated Fractures," Dr. W. Barnett Owen, Louisville, Ky. Every body welcome.

WALTER HUME, Secretary.

Heyburn Bldg., Louisville, Ky.

**McCreary:** On February 2, 1931, a special meeting of the McCreary County Medical Society was called at which time the greater portion of the delinquent members paid their dues and the following officers were elected for the ensuing year:

- J. E. Harman, Pine Knott, President.  
 A. Bradley, Barthell, Vice-President.  
 R. M. Smith, Stearns, Secretary-Treasurer  
 C. E. Cain, Whitley, Delegate.  
 A. Bradley, Barthell, Alternate.  
 Councilors, J. P. Simpson. D. S. Floyd, J. R. Acton.

The regular meetings will be held on the first Monday of each month.

Much more interest was manifested than has been in the past.

R. M. SMITH, Secretary.

**Bourbon:** The Bourbon County Medical Society held its regular meeting at the Court House, Paris, on December 18, 1930, with the following present: Drs. J. A. Orr, Wm. Kenney, J. S. Wallingford, J. M. Williams, C. G. Daugherty, J. C. Hart, G. C. Rankin, W. C. Ussery, M. J. Stern and Dr. F. M. Faries was present as a visitor.

#### Election of Officers

- President—J. A. Orr.  
 First Vice-President—J. S. Wallingford.  
 Second Vice-President, H. M. Boxley.  
 Secretary and Treasurer—M. J. Stern.  
 Censors—J. C. Hart, G. C. Rankin.  
 Delegate—C. G. Daugherty.  
 Alternate—G. A. Cook, G. C. Rankin.  
 Hospital Committee—Kenney and Hart.

A series of medical motion pictures was shown. Meeting adjourned.

M. J. STERN, Secretary.





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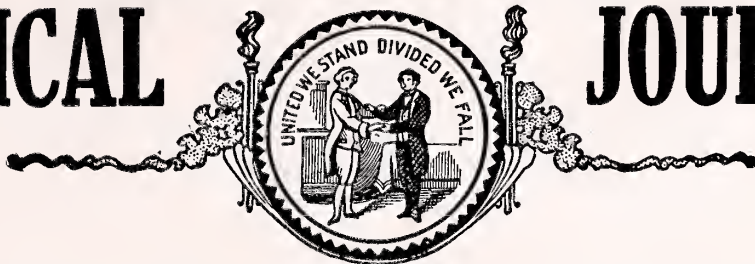
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# KENTUCKY MEDICAL JOURNAL



Published Monthly by the Kentucky State Medical Association Under the Supervision of the Council

VOL. 29. No. 5

BOWLING GREEN, KY.,

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NEXT ANNUAL SESSION, LEXINGTON, SEPTEMBER 7-10, 1931

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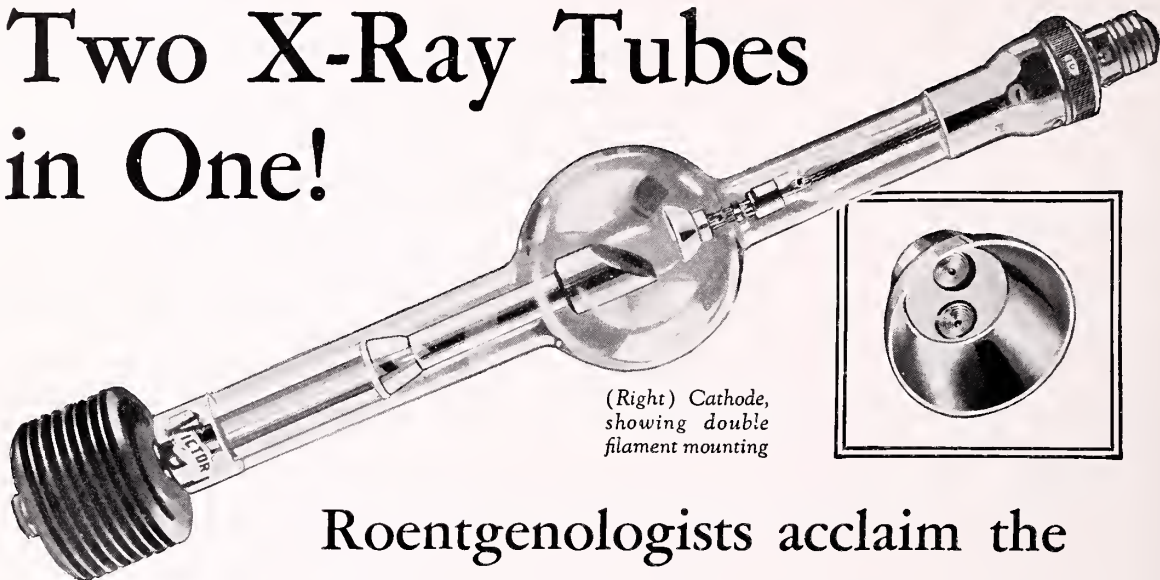
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	100	100	1 1/2
	75	100	3

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# KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

VOL. 29 No. 5

BOWLING GREEN, KY.,

MAY 1931

## EDITORIALS

### THE ANNUAL MEETING

The arrangements for the Kentucky State Medical Association at Lexington, September 7th through 10th, are about completed and every physician in the state can begin making his arrangements to attend with the assurance that he will have both an excellent post-graduate course and a delightful vacation.

There will be no sections. All the scientific sessions will be held in the beautiful Memorial Hall and meals will be served in the modern cafeteria on the third floor of the beautiful McVey building.

The House of Delegates will hold its sessions in the Engineering hall, one of the most unique rooms in America, devised by our Kentucky genius, Professor Paul Anderson.

The Woman's Auxiliary will hold its sessions in the auditorium of the McVey building.

Members who desire to do so can secure delightful quarters in the University dormitories. All of these buildings are located within about a block. Those who prefer can secure hotel accommodations at either the Phoenix or LaFayette, which are among the most modern and best managed hostelrys in the state.

Recent sessions of the Association at the Eastern Teachers College at Richmond and Western Kentucky Teachers College at Bowling Green have given the physicians of the state a far better idea of the splendid equipment our educators are developing for the training of teachers. Too few Kentuckians realize the remarkable growth of the University of Kentucky under the fine leadership of President McVey. This Lexington meeting promises to be interesting and valuable in every respect and in addition it will give us the opportunity of knowing more intimately one of the finest institutions of learning in any state.

### KENTUCKY HOSPITAL ASSOCIATION

The Kentucky Hospital Association will meet at the Brown Hotel, Louisville, Kentucky, May 4th and 5th, under the supervision of Doctor John R. Wathen, of Louisville.

The following subjects will be discussed:  
The Value of Post Graduate Work to the Hospital.

Why the Hospital Dietitian.

The Medical Social Worker in a Public Institution.

Economics in the Hospital.

How Can the Medical Staff Assure the Scientific Character of Case Records.

The Hospital Trustee.

History and Function of Joint Hospital Committee.

Round Tables will be conducted by the following:

Dr. Bert W. Caldwell—Executive Secretary, American Hospital Association of Chicago.

Mr. John McNamara—Executive Editor of "The Modern Hospital" of Chicago.

Mr. Matthew O. Foley—Editorial Director of "The Hospital Management" of Chicago.

At the banquet on Monday evening, May 4th, 7 P.M., Doctor Louis Frank will deliver the keynote address.

Not only every physician who is connected with the hospital but every hospital superintendent and director should arrange to be present at this important meeting which means so much to the health and welfare of Kentucky.

### POST GRADUATE COURSE

Preparations for the Post Graduate Course to be held in Louisville the first two weeks in June are progressing very nicely. As was the case last year those attending will be given the opportunity of doing intensive work in several different lines—surgery, medicine and the specialties. Opportunities will be given for small groups to visit the wards and watch very closely the different types of cases which will be found there.

There are many improvements in the handling of the various diseases which taken collectively amount to a marked advance. The visiting doctors will have the opportunity to watch these and also see some of the things that are being done which have not even reached the stage of being recorded in set papers. The medical and surgical treatment of goiter, peptic ulcer, intestinal obstruction whether cancerous or otherwise, oxygen tent treatment of pneumonia, acidosis and alkalosis in children, the endocrine disturbances especially in its relation to women and obstetrics, the intensive diet and treatment of diabetes. All of these and many other sub-

jects will prove of live interest and value to those who are able to attend.

The Commencement exercises of the University will be held at this time, and we hope a good many of the Alumni will be present on that occasion.

### EYE, EAR, NOSE AND THROAT SECTION

The annual meeting of the Eye, Ear, Nose and Throat Section will be held in Bowling Green May 13-14, 1931. The guest of honor will be the distinguished ophthalmologist of New Orleans, Dr. Clyde Lynch. The annual banquet will be held on the evening of May 13 and the regular scientific program will begin at 9 A.M. the following morning. Dr. H. D. Abell, the Secretary, has arranged an interesting program and extends an invitation to the medical profession to attend, for the subjects discussed will be interesting to the general practitioner as well as the specialist.

Bowling Green is noted for its hospitality, as can be attested by the many physicians who attended the State Association last year.

The Association is justly proud of this section and all its minutes, and the entire program will be published in an early issue of the JOURNAL.

The eye, ear, nose and throat section of the Kentucky State Medical Association will be the guests of the Warren County Medical Society at a banquet to be given Wednesday evening, May 13.

### PROMINENT LECTURER ON HEALTH

Dr. Eugene L. Swan, of the Educational Division of the American Social Hygiene Association, also a member of the Board of Governors of the Boy Scouts of America, will be an important visitor to Kentucky during April and May.

Dr. Swan's time while in Kentucky will be under the supervision of the Social Hygiene Association, one of the educational departments of the State Board of Health, and will cover talks before the leading educational institutions of the state, the men's luncheon clubs, women's organizations and school groups. The Association is anxious that all public and private organizations and groups have an opportunity to hear Dr. Swan. He will also be available for private conferences on subjects of health and parent education. Being owner and director of one of the outstanding summer camps for boys in the state of Maine, Dr. Swan is especially interested in young people, particularly boys, and will make an effort to reach all Boy Scout groups

in the state. If possible, the Association would like to have Dr. Swan visit every health department in the state, where he will speak to the nurses, doctors and lay citizens.

Dr. Swan will spend the greater part of the two months in Louisville, where he may be reached through the Social Hygiene Association of Kentucky, State Board of Health.

In arranging for this exceptionally worth while educational campaign for Dr. Swan, the Association feels that it is giving every parent, teacher, doctor, nurse and lay citizen an opportunity to hear one of the foremost speakers in the United States on the subject of health education, child training and community betterment, free of charge, and hopes every county will appreciate this and arrange large meetings when Dr. Swan is in their community. A schedule of Dr. Swan's lectures will appear in the newspapers of the state during the two months he is in Kentucky and any further information concerning him may be secured by addressing the Social Hygiene Association, State Board of Health.

### BEWARE THIS SOLICITOR

A solicitor for Harper's and other magazines offering sets of books as premiums has been victimizing physicians in Missouri and western Kentucky. In some places he used the name of T. T. McLean and in others Leroy Dale.

Our physicians are warned not to pay money to any subscription agent who solicits them. It is best not to even give them the checks, but to mail them direct to the house they represent if you want to order their wares.

### THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association meets in Philadelphia, the city of brotherly love and the medical center of the East, on June 8th to June 12th, 1931.

Kentucky physicians have been invited to join the Tennessee special train which leaves Louisville June 7th at 7:25 a. m., going via way of the Louisville and Nashville Railroad to Cincinnati and the Pennsylvania from Cincinnati to Columbus, Pittsburgh and Philadelphia. The rates are \$42.12 round trip, Pullman from Louisville to Philadelphia, lower berth, \$8.25 one way, upper berth accordingly.

Rates are issued on the certificate plan, which is full fare going and half fare returning, and can be used on all tickets purchased June 4th to 10th, inclusive. Tickets will be validated in Philadelphia June 8th to 12th,



and will be on for half fare basis returning June 16th. Stop-over privileges are within the limit of date of tickets.

Those who are interested in taking this trip please address Dr. L. H. South, Chairman of Transportation, care the Kentucky Medical Journal, Louisville, Kentucky.

### NEW LUNG DISEASE APPARENTLY DUE TO FUNGUS

No more important scientific development in the United States has taken place than the change from the old Hygienic Laboratory of the United States Public Health Service to the National Institute of Health. The former organization made notable contributions to medical science, but in its new and enlarged sphere it is confidently expected that many more problems will be solved.

Typical of these is the announcement of a lung disease encountered by the medical officers of the service while investigating the effects of dust upon miners.

About 125 cases of the disease are described as having been found by x-ray examination among more than 18,000 individuals during routine physical examination. The disease is, for the time being, designated military lung disease due to unknown cause.

Most of the cases had not stopped work or sought medical aid. The most characteristic finding was a large number of discrete, dense, shot like spots scattered over the lung areas. Tubercle bacilli were present in only two of the eighty-eight cases in which examinations were made of the sputum. Thirty-one of these cases were positive for fungus in unstained smears. Two types of fungus were identified as *Aspergillus fumigatus* fisheri and *Aspergillus niger*.

Other workers reported a condition called military calcification of the lungs, which may be a later development of the same condition.

**Syphilitic Kidney**—In the urinary examination of 350 patients with syphilis, no definite instances of syphilitic nephritis in which improvement occurred under treatment were discovered by Bancroft. Neoarsphenamine treatment was by albuminuria in 3 per cent of 350 adult patients. Neoarsphenamine treatment was followed by albuminuria in 3 per cent of 350 adult patients. Neoarsphenamine treatment was followed by albuminuria in 12 per cent of twenty-eight congenital syphilitic patients. Albuminuria occurred in 6 per cent of thirty-three syphilitic patients in whom dermatitis occurred during arsenical treatment.

### SCIENTIFIC EDITORIAL STUDIES IN MEDICINE FROM THE OBSTETRICAL STANDPOINT

In order to relieve the situation due to the scarcity of doctors in some of our rural communities, an attempt must be made to make the utmost use of the services of those doctors, available until the deficiency is supplied. Good roads must be provided in order that they can cover a larger territory and rural hospitals must be built so that they can safely conduct major emergencies. The day of the general practitioner who can do everything is over. With the advance in medicine it would be better if the general doctor would confine himself to a narrower field. The doctor taking general medicine and pediatrics should not do obstetrics because he is constantly in touch with infectious diseases.

A limited form of obstetrical specialization should offer a solution of that difficult problem. Some doctor especially interested in this branch should be selected to take care of the majority of the maternity cases in the community. Most practitioners will be glad to get rid of this time consuming feature of their practice.

The obstetrician can then provide himself with proper equipment and an experienced obstetrical nurse. The nurse when not otherwise occupied can make the prenatal calls on cases booked for delivery thus assuring a goodly sized community of up-to-date attention in this important field of medicine. To assure the success of such a plan the people of such a community must be educated up to the necessity of paying proper fees for his services in order that the doctor can provide the services of such a nurse with his equipment. Even then the doctor would have to add minor surgery and office gynecology to his practice as the meager returns from obstetrics would hardly justify him in giving up all the rest of his business.

With the exception of Abruptio Placenta, Placenta Previa and Cesarean section, nearly all obstetrical procedures can now be conducted in the home, especially with the assistance of a competent nurse.

Obstetricians engaged in such work should take the opportunity to visit the Obstetrical Department of the City Hospital for a week or two each year for experience in the latest methods of obstetrical analgesia, and the up-to-date treatment of puerperal fever, the toxemias and the hemorrhages.

I am sure that the University of Louisville would make agreeable arrangements for practitioners in Kentucky desiring such additional experience.

It is well to remember finally that regard-

less of the number of doctors that you graduate, they will not go to inaccessible regions bare of the ordinary comforts and opportunities of present day civilization.

EDWARD SPEIDEL, M. D.

### ORIGINAL ARTICLES

#### CANCER OF LARGE INTESTINE\*

LOUIS FRANK, M. D., F. A. C. S.

Louisville.

One reason for introducing this subject is that I am interested, as all of us are, in cancer, in general. My interest has been very great for a number of years, and looking back over my past experience I have been impressed with some of the things I have observed in the course of practice, and have changed my views somewhat in regard to cancer; and things at which I was inclined to scoff in my early years I now feel sure have a real foundation in fact.

As to the cause of cancer: In general we know a little more about this than we did twenty years ago. We have learned and it is generally accepted as true that prolonged irritation any place in the body may produce cancer. Perhaps it would be better to say that cancer arises by preference in those localities that have been subjected to prolonged irritation. We may look upon that as one positive factor; that it is the exciting factor or the only factor I do not believe. I would look upon it rather as a contributing factor. Japanese investigators have produced cancer in experimental animals by rubbing tar on their bodies, and calculated on the basis of life variation of the animal have shown that in man following irritation over a proportionate period cancer has frequently followed. I think this work is very impressive.

Another factor about which I had my doubts in former years, namely, heredity. There can be, I think, no doubt that cancer is in a measure hereditary. This is a very important question. If the chromosomes can carry anything to the individual, if they can carry the color of the eyes, hair, general conformation etc., they are just as capable of carrying a susceptibility to cancer and other diseases that are not infectious. I think heredity plays a large part in the production of cancer.

In examining my cases I have been much impressed with the family records of cancer cases. I might cite a physician, formerly a member of this society, who died from massive carcinomatosis beginning in multiple diver-

ticula of the large intestine. His sister was under my care for a year or two before his death with a cancer of the breast. She died six months after breast amputation from widespread bone metastasis. Can these be coincidences? The father of this physician's wife died from cancer. The physician's wife died from cancer of the breast with brain recurrence, after one local recurrence had apparently disappeared under roentgen-ray treatment. Her brother has recently been operated on for cancer of the large intestine. These are more than pure coincidences, and I believe there are other diseases which may attack certain groups of families. I have seen twenty-five members of one family who had appendicitis. In other families not a single member has ever had appendicitis. I believe there is much more in heredity than we have heretofore thought.

One reason I selected the subject of cancer of the large intestine is because I think if there is one place in the body where cancer occurs, where we make an early diagnosis and with probability of complete relief following removal, that situation is in the gastro-intestinal tract below the stomach. If we will examine the history of our cases with reference to cancer of the gastro-intestinal tract, excluding the 3 per cent occurring in the small intestine, we find that cancer of the large intestine and rectum exceeds that of other organs. Therefore, in the large intestine we have a wide field for study. We must always keep in mind the peculiar anatomic relationship of the large intestine; its function and its lack of active lymph drainage, both of which render this area one very susceptible to the cure of cancer; it adapts itself to surgical procedures to better advantage than any other organ I know except the uterus. If we omit from consideration the rectum and anal region and study the upper or loose portion of the large intestine, particularly its right half, we find it is entirely different anatomically and in its embryonal origin from the left half. If we take the right half alone, from the mid-portion of the transverse colon to the cecum, it is, when attacked by cancer, more satisfactorily removable than any other portion of the body except the uterus. This, I think, is most favorable.

We must bear in mind the embryonal origin and derivation of these structures. The ascending colon, the hepatic flexure, in fact all that portion supplied by the right colic artery, has the same blood supply as the small intestine, namely; the superior mesenteric artery, and its lymph supply is the same as the small intestine. In the left side we have quite a different picture. The left half gets its blood supply from the inferior mesenteric ar-

\*An address delivered before the Louisville Medical-Chirurgical Society, illustrated by lantern slides, November 28, 1930.



tery, a blood supply that often does not anastomose with that to the right half; and right here we have a reason for some of the unsuccessful results following end-to-end anastomosis of the transverse colon. The right half of the colon develops from the mid-gut and the left half from the hind-gut of the embryo.

Referring again to colonic cancer: There is also quite a difference in the character of the growth itself. While all these growths are adenomatous, and practically always begin in the glandular tissue of the intestine, yet the type of growth may differ widely. Rarely do we see—and I do not recall having seen such a case—a scirrhus growth in the right half of the colon producing obstruction. This is almost always a characteristic of cancer in the left half of the colon. A large proportion, probably between 50 and 60 per cent, of the growths in the left side of the colon are scirrhus in character, they grow in the connective tissue around the intestine, beginning as a rule at the mesenteric border, passing around the intestine and result often in acute obstruction.

Referring again to the right side of the colon. There the growths are more of a medullary type. These growths may be large, filling the intestine, but on account of the type of the growth and the intestinal contents being liquid, patients with cancer of this part of the intestine do not often have symptoms of obstruction. They come to us after a long period of time with massive growths in the right colon, which are not discovered until there has been much loss of weight and the appearance of obscure symptoms not perhaps referable to the intestinal tract. Unless there is partial obstruction we may be unable to make the diagnosis from the history and clinical manifestations present. So we see there is not only a difference in the origin, but there is a difference in character of the growth, a difference in the history of the growth, and a difference in the symptomatology these patients present.

When it comes to a study of the symptoms in these cases, we must not lose sight of the fact that the symptoms give no intimation of the character of the growth present. Not all cancers are alike. In the left half of the colon very often symptoms of obstruction are the first presented. If the growth is low in situation, there may be a history of more or less constipation and difficulty in inducing defecation: at the same time, if the growth is low although there may be almost complete obstruction the patient will present with diarrhea. Should the growth be on the left and especially if low, on account of the contents of the intestine, admixture of blood is not

uncommon. With a growth in the right half of the colon, occult blood is frequently found in the dejecta. The patient with a growth in the right half of the colon usually appears complaining of loss of weight, with obscure symptoms not referable, it may be, to the intestine itself, but to the gall-bladder region, the upper abdominal quadrant, or they come for consultation on account of increasing weakness and increasing anemia. Attention has been called repeatedly to the significance of unaccountable secondary anemia and its relationship to cancer of the right half of the large intestine. With all of this, however, I think the final diagnosis in a great many of these cases will depend upon the roentgenological findings. I believe all patients presenting obscure symptoms, which cannot be otherwise accounted for, should be at once referred to the roentgenologist for study. It is upon study of the roentgenograms that accurate and final diagnosis will depend in the earlier stages of the disease. When these patients have reached the point where he who runs may read, they are not always susceptible to surgical relief. I say "not always" because I believe possibly we have failed to undertake radical procedures on many of these patients who might have had a very good chance for recovery.

I would repeat: that in cancer of the right half of the colon, so long as there are no metastases in the liver, so long as the lymphatic glands at the root of the superior mesenteric artery are not involved, so long as there are no implants in the pelvis, these patients in many instances may be subjected to radical operation with a good chance that some of them will be completely relieved.

Attention has been called to the fact that lymphatic involvement does not always mean that the enlarged glands are malignant. Especially about the right colon the enlarged glands are very often inflammatory in origin, the result of infection. Again, and addressing myself purely to the right colon, the cecum and ascending colon, as a result of their structure and of their developmental characteristics, lend themselves kindly to the radical procedure of surgical removal. If we carry the colon inward toward the midline, we carry with it all its contents, glands, blood vessels, etc., all these can be carried easily with the inner layer of peritoneum almost to the midline. That is one reason these structures lend themselves so readily to radical removal. In the region of the sigmoid, which is not an infrequent site of cancer, we also have an area which lends itself kindly to radical removal on account of its long mesentery.

When it comes to dealing with cancer of the descending colon and rectum, the lower

rectum particularly, then we have to consider entirely different procedures. And just here I want to pay my respects to the Mayo Clinic and William J. Mayo for the development in this country of the surgery of the colon, especially the upper end, the lower right side, and the rectum. I think the progress in America in colonic surgery is the direct result of their work.

As to the procedure: I think in cancer of the right half of the colon, if there are no metastases in the liver or the neighboring lymph glands, the growth should be removed, it matters not how extensive it may appear. This can be accomplished by a one-stage operation. As in any other major surgical procedure, the patient should be carefully and properly prepared, anemia should be overcome as far as possible, careful study made of the blood chemistry, blood pressure, etc., and such other pre-operative preparation as may be indicated. When this has been done the operation may be completed in one stage. It matters little whether we make an end-to-end anastomosis, end-to-side, or side-to-side. After completing the anastomosis, I think it is well, as suggested by Dr. Charles H. Mayo, to make a gas vent in the form of a tube placed in the intestine ten or twelve inches proximal to the point of anastomosis. You may ask, what is the value of this? We have in the colon a different anatomic arrangement than in the small intestine. The blood supply is different, and the intestine itself is thinner. Very often in cases of chronic obstruction from disease, cancer especially, the intestinal walls are edematous and very susceptible to the effects of micro-organisms, and infection supervenes. The sources of the blood supply in the mesentery are more widely separated than in the small intestine. Also the large intestine is difficult to cover entirely with peritoneum, and as a result of the difference in blood supply, with the anatomic difference, it is less susceptible to successful resection operations.

Ten or twelve years ago I performed end-to-end anastomosis of the lower sigmoid for cancer. The patient did beautifully for five days then began to have fever. Defecation occurred normally and progress was favorable for four or five days more, but death occurred on the ninth or tenth day after operation. Necropsy showed a normal suture line in front, but the sutures had separated behind the peritoneum with abscess formation on the posterior surface. This portion of the large intestine is much more easily infected than the same part of the small intestine. Infection is very difficult to prevent below the left half of the transverse colon, because of our inability in some instances to obtain a

perfectly aseptic field. Therefore, infection with abscess formation is not an uncommon result of operation in these portions of the large intestine. In the presence of infection and edema, with constant pressure on the suture line, it is apt to separate.

In the left half of the large intestine, the work we have done for cancer in recent years has been by the two-stage operation. This plan was first suggested to me by Dr. Granville S. Hanes whom I assisted in operating upon a patient for cancer of the sigmoid. We elevated the sigmoid and performed a typical Mikulicz operation. The patient made a satisfactory recovery. Our own operations on the left colon have all been by the two-stage procedure, just as have those in which we found a growth in the upper rectum. In cancer of the rectum we have first performed colostomy, then cleansing the intestine carefully and later doing a secondary operation. Everything is dissected free to below the peritoneal reflections. The peritoneum is then sutured over the freed intestine which is pushed into the pelvis, the abdomen is closed, and the operation completed from the perineal side.

We have modified the Mikulicz procedure a bit along the lines described by Sistrunk. That is, not only do we remove all the diseased intestine, but at the same time we remove all the involved mesentery. After a typical Mikulicz operation on the large intestine the mesentery becomes swollen and one cannot be sure that all involved structure is removed. What we have done is to primarily remove all involved mesentery then close the wound therein, elevating the intestine as advised by Sistrunk, and applying clamps. Later the partition between afferent and efferent loop is deeply divided, and rarely if such division is sufficient is it necessary to do a secondary operation for closure of the fistula.

#### CONCLUSIONS

- (1) Cancer of the colon should be diagnosed earlier:
- (2) Cancer of the colon, even when apparently far advanced, is often susceptible of cure:
- (3) Cancer of the cecum and right colon is especially adapted to radical removal:
- (4) The operation for removal of cancer of the colon must be adapted to its location, its duration, and extent of involvement.

#### DISCUSSION

**Granville S. Hanes:** Cancer of the large intestine presents, as in most parts of the body, a very troublesome problem. I will say the essayist has shown in his discussion that he possesses a wide and comprehensive knowledge of the most recent and sane views on this subject.

I feel so uncertain about many phases of



malignancy of the large intestine I shall make my remarks very brief.

I doubt the theory of irritation being responsible for cancer of the large intestine. I refer to irritation due to bacteria or other poisonous agents that may be developed in the alimentary tract.

If heredity should be emphasized as the chief causative factor this would serve in a measure to abrogate the importance of the irritation theory. There may be some truth in the belief that both heredity and irritation act simultaneously as causative factors.

I have said upon previous occasions before this society, and have also had some discussion on the subject with our eminent essayist, that cancer of the large intestine does not occur in typical inflammatory conditions which are commonly referred to as colitis. I have also seen numerous patients with so-called ulcerative colitis and none of these developed malignancy. When I was associated with Dr. Matthews many patients affected with chronic colitis came under our observation and when they were later seen from time to time not one, so far as my knowledge goes, developed cancer. I do not fear that patients who have what is known as chronic catarrh or colitis are exposed to the possibility of developing malignancy of the large intestine. We see these patients month after month and year after year with no signs of cancer developing. I tell patients that I believe the greatest security they can possess against cancer is a chronic infection of the large intestine.

I believe it is the experience of most doctors who have observed their patients closely that cancer of the large intestine appears when patients have not complained of a long continued irritation in the colon. On the contrary both patient and doctor are astounded when a cancer is discovered with so few and insignificant preliminary symptoms. It is at least deserving of consideration as to why these patients are not seen developing cancers when they are kept under observation over such long periods of time when the intestine is in a continued state of inflammation or irritation.

Of course, much has been said about the early symptoms of cancer of the colon; and, it is astonishing that both the wall and the lumen of the intestine may be so materially altered before symptoms of a suspicious character may be aroused. These surprises have been frequent and while they may be less common now than formerly, they will continue to occur until some more effective scheme of early recognition has been discovered.

It is my opinion that the earliest clinical symptoms in cancer of the colon which we are capable of recognizing occur in an unaccountable loss of weight and constipation. If patients

kept accurate knowledge of their weight and intestinal activity these would be found, in my judgment, the early clinical symptoms of malignant invasion of the large intestine. Of course loss of weight and constipation are present in many cases where cancer is not taken into consideration and where other etiological factors are plainly apparent. The loss of weight, of course, becomes alarming when it amounts to several pounds, but I wish to call attention to the importance of minute reduction in weight, associated with constipation, where neither may be accounted for by any symptoms the patient may exhibit.

Many doctors attach much importance to bleeding from the intestine as an early symptom of cancer. There are, however, so many simple lesions present in the colon that may be the source of bleeding I do not believe such a symptom possesses much value. After the cancer has broken down and it is located in the terminal part of the bowel, where it is under the influence of much pressure from straining, bleeding may be profuse; but the fibrous type of cancer may completely obstruct the intestinal lumen without giving rise to hemorrhage of any consequence. Bleeding alone, as a diagnostic symptom in early cancer of the large intestine, I believe is of little importance.

We have much to learn concerning the wide variations and behavior of malignant growths in the colon as elsewhere in the body. I have seen comparatively large tumors in the rectum yield to thorough cauterization and remain inactive for four or five years. On the other hand, similar tumors treated in a like manner would terminate in death in a comparative brief period. The same can be said when excisions are made. Some carcinomatous growths in the large intestine, when operated upon in their earliest stages, result fatally in a brief period of time regardless of any or all forms of treatment. The conclusion is that the fatal properties possessed by cancerous growths have a wide range extending from that of the least to that of the most malignant growths.

It is well known that cancer of the colon in the young is quite rare and its malignancy is always vicious and difficult to control. I heard Mr. Mummery once say in London that he considered any method of treatment practically hopeless in cancer of the rectum or sigmoid in patients under twenty-five years of age.

The method of operating for cancer of the colon, with the exception of minor details, is quite the same in this country and in Europe, especially in the British Isles. Mr. Miles, of London, emphasizes the very great importance of keeping patients in hospitals for ten days or longer for the purpose of getting them in the best possible condition for the terrible operation they are to undergo.

**L. Wallace Frank:** There are only two or three points which I wish to discuss in connection with cancer of the large intestine. I disagree with the previous speaker in his statement that loss of weight is one of the earlier symptoms. Loss of weight in cancer of the cecum does appear early due to rapid bacterial growth in this area, the pathological type of carcinoma, and that the absorption is much greater than on the left side. Loss of weight and anemia are the result of local stasis and absorption rather than the cancer itself. Loss of weight in cancer of the transverse colon and rectum has been, in my experience, a late symptom of the disease.

The early symptoms of cancer of the large intestine are rather vague and obscure. Cramps and colicky pains throughout the abdomen in an individual past middle age demand careful study by the roentgenologist. In that way an early diagnosis may be made. As a rule, when the surgeon sees these patients, so far as a cure is concerned, relatively little can be done. Here I believe periodic health examinations, as advocated at the present time, are of great value. These examinations should not be made carelessly or hastily, but the individual should be studied from every standpoint, including laboratory methods. Moreover, when these individuals apply to the surgeon they should be carefully questioned, the urine, blood, etc., tested, they should be studied from every standpoint, basal metabolic rate, blood chemistry, and above all the roentgen-ray. If this is done many cases would be diagnosed that under present circumstances we do not see until late in the disease.

This brings to my mind an individual whom I saw several years ago. The patient, a man beyond middle life, had complained for some time of vague gastrointestinal symptoms, and on his own initiative applied to a roentgenologist for examination. There was nothing definite about the history. The roentgenologist told him he thought an operation should be performed although he could not make a definite diagnosis, but he thought there was something wrong with the pylorus or first part of the duodenum. Two years later that man returned in an absolutely hopeless condition. He had an inoperable cancer involving practically the entire stomach. This illustrates the point just made about the importance of careful periodic health examinations.

I think the greatest factor influencing the end-result of operative treatment of cancer of the large intestine is the pre-operative preparation of the patient. Those cases progressing to the point of obstruction should be treated as cases of obstruction alone primarily, the growth being dealt with at a later date. By a more careful study of obscure symptoms with the roentgen-ray I think we will be able to make

the diagnosis earlier and consequently our percentage of cures will be increased.

**Guy P. Grigsby:** I have little to say on the subject of cancer of the large intestine, but would be amiss if I did not express my appreciation of Dr. Frank's presentation. The last speaker has emphasized practically everything I wanted to discuss. Of course, early diagnosis is extremely important in these cases, and that can only be accomplished by the most careful routine examination of the patient. As has been said, the early symptoms of cancer of the large intestine may be mild and obscure, often limited to occasional colicky pains and slight obstruction. If these patients could be subjected to thorough roentgen-ray study, doubtless many early cases of cancer would be discovered that could be handled by proper surgery and perhaps a cure effected.

There is no question about the type of operation. I think the method the essayist outlined has been adopted by most surgeons who do this class of work. The statement is familiar to us that sometimes patients recover despite operation, or I might say in spite of a rather inferior type of surgery. Several years ago a surgeon of this city who was then quite ill, asked me to operate on a patient for him as he was physically unable to do so. He had operated on the patient, a woman of middle age, for an ovarian tumor years before. She had no improvement following the operation, which he said was not very complete, as he did not remove all the tumor. Her main symptom was gradual obstruction which finally became complete and was evidently in the sigmoid area. Operation disclosed two large ovarian tumors with a papillary cancer on the left side involving practically two thirds of the sigmoid. On freeing this tumor, I found that the entire outer wall of the sigmoid had been destroyed by the growth, there remaining merely a shell of sigmoid over it. The woman was in very bad condition at that time, so I quickly applied two clamps, freed enough of the mesentery to cover the damaged intestine, placed six or eight Lembert sutures to bring the ends of the sigmoid together, making no attempt to close the peritoneum. Of course we had no hope that the patient would recover. A large drainage tube was inserted into the cavity, and I thought we were fortunate in getting the woman off the operating table alive. It was expected that she would die promptly from general peritonitis. During the night she was given one dose of morphine,  $\frac{1}{4}$  grain. To my great surprise when I visited the hospital the next morning, she said she was "feeling fine." To make a long story short, at the end of the eighth post-operative day the drainage tube was removed. Defecation had occurred the sixth day. She made a very satisfactory recovery. That was about five years ago. She was in my



office a year ago, and at that time there was still a little seepage from the wound. She had gained seventy pounds in weight, and there had been no symptoms so far as the intestinal tract was concerned. I simply mention this case to show what can sometimes be accomplished by imperfect surgery when the patient is endowed with sufficient natural resistance. If I had taken the time to make a complete closure of the sigmoid, the patient would undoubtedly have perished. Careful examination a year ago showed no evidence of recurrence of the growth.

**Chas. D. Enfield:** I agree with Dr. Louis Frank, Dr. L. Wallace Frank and the other gentlemen who mentioned it, that the Roentgen-ray examination is extremely important in the diagnosis of colonic malignancy, but I should like to caution you not to accept a single negative report as final in any case where there are definite clinical grounds to suspect the presence of a malignant growth in the large intestine. If a competent roentgenologist makes repeated negative reports after a series of careful examinations, that is a different matter. I am quite sure that we miss a good many more early malignancies in the colon than we do in the stomach. The stomach, from the pathological standpoint, consists of the two curvatures since most lesions, whether benign or malignant, are located on either the greater or lesser curvature. Fortunately, these are the parts which present themselves most clearly during the ordinary, routine x-ray examination. The normal outline is smooth and distinct and peristaltic activity can be followed from the upper portion of the stomach to the pylorus and, if it is interrupted, the exact site and size of the interruption can be readily determined. Even small irregularities in the surface present themselves rather conspicuously; consequently few early malignancies of the stomach are missed on reasonably careful x-ray examination. We can make certain that the stomach is empty when we start to examine it and, consequently, that it is thoroughly and completely outlined by the barium mixture which we introduce.

On the other hand, the normal contour of the colon is quite irregular. It is rarely completely empty when we attempt to examine it and, especially in the partially obstructed colon, it may be difficult or impossible to secure that ideal state. Lesions of the colon are by no means confined to the two lateral borders most easily visualized. Peristaltic movement in the colon is rather infrequently observed and, when seen, is not of a character to aid greatly in localizing small lesions. A further difficulty lies in the fact that many, perhaps most, malignancies of the colon start with an infiltration of the wall which affects the lumen but little until the growth has attained considerable size. With regard to the sigmoid, the lower part of

this structure is masked by the filled rectum during the administration of barium under fluoroscopic observation unless the patient is turned to one side or the other and the particular angle at which his sigmoid is best visualized is determined experimentally. Again purely benign conditions, such as spasm, may cause a high grade obstruction to the introduction of an enema which may be sufficiently irregular in outline to suggest malignancy but which, on re-examination, may be found to be entirely absent.

I happen to be familiar with one of the cases Dr. Frank mentioned in his paper. This man, apprehensive on account of the family history, had had his gastro-intestinal tract examined at intervals of a few months for some years. I examined him, I believe, three times with entirely negative results each time. Fortunately, he was examined at Johns Hopkins Hospital a few months after my last examination and a very few months prior to the examination at the Mayo Clinic when he was found to have an inoperable malignancy of the hepatic flexure. Certainly he could have taken no more precautions than he did to secure an early diagnosis in the event of development of a malignancy. He had lost almost no weight. His blood picture was practically normal and yet, when the abdomen was opened, it was found that there was already involvement of the liver.

Let me emphasize again this fact: If malignancy of the colon is suspected on sufficient clinical grounds, send the patient to the roentgenologist promptly. If a negative report is returned, however, do not let that end the matter but see to it that the patient is re-examined by the same or another radiologist in a month or six weeks.

**Louis Frank, (in closing):** I thank the gentlemen for their discussion. Cancer of the large intestine is a very interesting subject. I am attracted to cancer in this region for the reasons I have mentioned, namely: that it is a disease of long duration, and if you will examine your records carefully, or if you will report your cases, you will find relatively few of your patients with cancer of the large intestine have died of the disease.

Perhaps Dr. Hanes misinterpreted what I said. I spoke of irritation as the starting point. If no other factor is present, the patient may exist for years without developing cancer. It is well known that prolonged irritation of structures does contribute to the formation of cancer. We have examples of this in cancer of the lip, on the tongue, at the pylorus, in the large intestine, and I think in other structures. Cancer occurs in the various flexures of the colon as a result of delay in the fecal flow at these points.

Again referring to Dr. Hanes' remarks: He said that he had never seen cancer develop in

the presence of colitis. On the other hand, no doubt in many of these cases a polyposis exists, and we know that polypi in the large intestine are very prone to undergo malignant changes. These growths may have been absolutely benign in the beginning, but, particularly in the colon, we know they not infrequently undergo malignant degeneration. In some of these cases the polypi may exist a long time and colitis be present as a symptom. I do not know how we could determine that unless we open the colon and examine it.

I want to reiterate what has been said three or four times, that in individuals who have reached the cancer age symptoms referable to the intestinal tract should be given greater weight and more careful examination should be made than has been our custom heretofore. The patient should not be dismissed because we find nothing abnormal on manual examination and palpation of the abdomen, or by ordinary laboratory studies. Many of these individuals have no obstruction, and, as Dr. Enfield mentioned, if the first x-ray examination is negative it should be repeated, particularly if symptoms continue. Some of these individuals in whom nothing abnormal is found by examination, if they have anemia and loss of weight, and especially if they have a cancer history, and have arrived at the cancer age, should have the abdomen opened and many times malignancy will be found the cause of the trouble.

We are seeing more cancer now than heretofore because more people reach the cancer age. In individuals aged 50 years or more, who present obscure symptoms referable to the abdomen, we should always suspect cancer of the large intestine, which, like cancer of the stomach, gives not much warning. One reason why cancers of the colon may exist for long periods undiscovered is that they give no definite alarming symptoms. Even though the growth may be extensive locally, so long as there is no metastasis and little glandular involvement, the patient may be susceptible of surgical relief.

**Are There Indications for Operations on Suprarenal Glands?**—Crile concludes that indications for unilateral suprarenalectomy or, better, bilateral denervation of the suprarenal glands cannot be finally stated at the present time. In certain cases of residual hyperthyroidism, the symptoms seem to be completely controlled by division of the nerve supply of the suprarenals or by unilateral suprarenalectomy. In cases of intractable peptic ulcer, denervation of the suprarenal glands gives promise of good results. Whether or not these operations will have a wide application is still sub judice.

## NICHE IN THE DIAGNOSIS OF PEPTIC ULCER\*

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Louisville.

For the benefit of those whose work does not bring them in contact with the technical terms of Roentgenology, it may be explained that the niche is, in effect, the visualization on the x-ray film or fluoroscopic screen of the actual ulcer crater, or of the crater plus a varying amount of spastic contraction about its borders. Thus, the niche is the picture or shadow of the ulcer itself.

Ever since it was first realized that the scope of x-ray diagnosis extended beyond the fields of bone and chest visualization in which the ray had its earliest and obvious medical application, the history of progress in Roentgen diagnosis has been, in effect, the history of the development of contrast media. The delineation of an image upon the sensitive plate or the fluoroscopic screen depends upon differences in density between the anatomical parts to be examined and their surrounding tissues, and if this difference does not normally exist but can be artificially created through the introduction of a medium of greater or less density, the scope of x-ray diagnosis may be thereby enlarged. The first efforts to visualize the stomach were presumably suggested by the normal presence of a gas bubble in the fundus and consisted in the injection of the organ with air through a stomach tube. Other early workers attempted to visualize the stomach by the introduction of metallic mercury and by the passage of a soft rubber tube containing a coil of wire. In 1904, however, the use of a suspension of bismuth was advocated by Rieder and since that time the basic technique of gastrointestinal diagnosis has not changed materially except for the substitution of barium for bismuth.

Examination of a considerable number of gastrointestinal tracts first gave rise to a striking revision in the ideas which had previously obtained as to the anatomy and motility of the stomach. The conceptions then current had been based chiefly on organs observed at autopsy or under the complete relaxation induced by surgical anesthesia and these had little resemblance to conditions existing in the living and functioning stomach.

Familiarity with the new concept of the normal led promptly enough to the observation that certain types of gastric diseases were quite uniformly characterized by certain disturbances of motility and since the

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somewhat crude apparatus and the undeveloped technique of the early workers did not frequently permit of direct visualization of the actual lesion, combinations of indirect signs justifying diagnosis of gastric diseases were formulated by various pioneer workers. Since, however, the actual lesion in gastric ulcer is apt to produce a larger and more striking deformity than is the case with duodenal ulcer, the direct diagnosis of ulcer on the lesser curvature of the stomach was described and established rather early. In 1910, Haudek published his epochal article on the x-ray diagnosis of gastric ulcer in which the presence and characteristics of the visualized crater, which he then for the first time referred to as a niche, were brought out. He considered necessary for the diagnosis the demonstration of a projection, somewhat like a diverticulum, from the outline of the gastric shadow. This deviation in outline, to be convincingly diagnostic should, he stated, contain a gas bubble as well as some of the bismuth contrast medium and it should retain the bismuth after the main body of the stomach had emptied. Haudek himself and later Eisler described the associated phenomenon of a ring-like contraction of the greater curvature opposite the ulcer which, when visualized on the fluoroscopic screen or on a plate, presented the appearance of a sharp incisura pointing toward the ulcer.

Duodenal ulcer was as a rule diagnosed on indirect rather than direct signs for many years after the direct diagnosis of gastric ulcer was accepted and considered routine. In fact it was not until 1912 that Rieder suggested the possibility of visualizing the duodenal ulcer crater. Haudek in the same year and again in 1913 stressed the importance of the niche in the diagnosis of duodenal as well as gastric ulcer. However, in spite of many differences in technique and considerable improvements in apparatus, it is still considered in many cases entirely justifiable to diagnose duodenal ulcer by inference from indirect signs: a statement which does not apply to gastric ulcer.

Anatomically, peptic ulcers are found in the lower portion of the esophagus with exceeding rarity; on the lesser curvature of the stomach quite frequently; in other parts of the stomach very rarely; in the first part of the duodenum very frequently and, following gastroenterostomy or other types of surgical interference, with considerable frequency about the stoma and in the jejunum distal to the stoma. It is difficult to estimate the relative frequency of gastric and duodenal ulcer. A questionnaire sent by the writer several years ago to a number of radiologists and gastroenterologists throughout

the country elicited replies indicating a proportion varying from thirty per cent of gastric to seventy per cent of duodenal to five per cent of gastric to ninety-five per cent of duodenal. From the relative frequency with which we personally see the two types of lesion, I should judge that in this part of the country duodenal ulcer is at least fifteen times as frequent as gastric ulcer. With regard to the frequency of postoperative ulcers in the jejunum or about the stoma of the gastroenterostomy, surgical statistics vary; but it seems likely that such lesions occur in five to ten per cent of gastroenterostomies performed for ulcer if the case series are followed for a sufficient length of time.

Histologically peptic ulcer may be anything from a mucous erosion a few millimeters across and involving no structure deeper than the mucous membrane, to a penetrating gastric lesion producing what Cole has described as the "letter-box" deformity. Intermediate types are the early shallow ulcer chiefly confined to the mucosa, the deeper chronic ulceration extending into or through the muscularis, which type in turn may become penetrating or perforating. It should be borne in mind that the deformity visualized by x-ray is oftentimes and indeed as a rule considerably greater than one would expect from inspection of the gross pathological specimen. This is due to the fact that the lesion, which in itself may deform the outline of the gastrointestinal tube only to the extent of a few millimeters, is pushed outward and, as far as the x-ray appearance is concerned, greatly magnified through spasm and irritation of the surrounding normal musculature. However, when complete penetration of the wall occurs, spasm need no longer be a factor in producing large and striking niche deformities as there is almost no limit to the invasion of surrounding structures which may occur.

Most workers agree on the importance of careful and perhaps prolonged fluoroscopic observation of the barium filled stomach and duodenum. Oftentimes it is necessary to wait some considerable time for the peristaltic activities of the stomach to outline satisfactorily that portion of the organ which, after a careful initial survey, has come under suspicion as being the probable site of disease. Frequently better visualization of this suspected region will be obtained by palpation in various postures, by changes in the position or posture of the patient, and possibly after all it may be necessary to repeat the examination on a subsequent occasion. More satisfactory fluoroscopic visualization of minor defects in the mucous membrane may sometimes be obtained by administration of barium

mixed with acacia; the patient being almost supine at the time of swallowing. A Bucky grid is in many instances a valuable addition to the fluoroscopic screen. Not infrequently, if the first examination is unsatisfactory and the examiner is unable to make up his mind about the presence, extent or character of a lesion, a subsequent examination, perhaps conducted with no greater care than the first, may pleasantly clear up the doubt and bring about a perfectly conclusive and satisfactory demonstration. This fortunate event may be aided by the administration in the interval of considerable doses of belladonna given in the hope of relaxing such spasm as is not intrinsic in the lesion itself. It need not be emphasized, however, to anyone familiar with the practice of gastrointestinal radiology that fluoroscopic examination of the stomach and duodenum is essentially an art to be cultivated over a period of years and, other things being equal, accuracy in diagnosis is apt to be in quite direct proportion to the skill and experience of the examiner. Films are of great value as a record and occasionally bring to light conditions not observed during the fluoroscopic observation. It should be borne in mind, however, that it is the exceptional gastrointestinal lesion and the exceptional series of gastrointestinal films which permit complete, accurate and adequate diagnosis from the films alone without skilled fluoroscopic observation.

Finally, we come to the point of this paper, namely, the practical significance of the niche and its place in the diagnosis of peptic ulcer. Is it justifiable to make a diagnosis of ulcer without the demonstration of a niche? Is it imperative to continue the search for a niche in the presence of certain accepted indirect signs? Is it under certain circumstances absolutely bad technique to persist unduly in the hunt for a typical niche deformity?

In the first place, it is evident, since the niche is the direct record on the film or fluoroscopic screen of the ulcer itself as outlined by the contrast medium, that it is, when found, absolutely diagnostic. This statement is true subject to certain hazards of interpretation; which is to say, it is true if the shadow so interpreted is truly a niche. If barium is retained in the niche after emptying of the main tube, if through palpation with the gloved hand or by other means the main body of the stomach or duodenum can be emptied and the niche left filled; if on more than one examination and preferably with antispasmodics administered in the interval, the irregularity interpreted as a niche remains constant, there can be no practical doubt that it is indeed the shadow of a filled ulcer crater. On the other hand, and

particularly in regard to duodenal lesions is the hazard that, if one is too enthusiastic about niches, he is apt to regard any small and fairly constant irregularity in outline as a typical and satisfactory niche deformity; even though it may really have been produced by spasm. Thus it may be said with considerable accuracy that the frequency with which any individual worker will demonstrate niches in his ulcer cases will depend; first, on his care in making the examination, and second, on his carelessness in making the interpretation and it seems probable that workers who report a very large percentage of niches are, to put it mildly, somewhat broad in their criteria. It has been said that it is very fortunate for the Roentgenologist that almost all gastric and duodenal lesions occur on the two borders of these organs which are most easily visualized. Since the incoming stream of barium follows closely the lesser curvature of the stomach and since nearly all gastric ulcers are situated along the lesser curvature in its middle third, it is relatively easy and quite the rule to observe a clear and distinct niche deformity in sizeable gastric ulcers of the penetrating type. The very rare gastric ulcer occurring on the greater curvature is equally easy to visualize, while those occurring either slightly anterior or slightly posterior to the lesser curvature border can usually be visualized fluoroscopically with the patient supine and the stomach only partly filled. In gastric ulcer the element of spasm is not particularly apt to be confusing.

In duodenal ulcer, however, the lesion itself is, as a rule, so insignificant in size as compared with the deformity produced by co-existent spasm that it is often difficult to choose which, if any, of several small projections in the outline of a thoroughly deformed bulb shall be considered a niche deformity. It is in this type of case that it is considered wholly impractical and inadvisable to persist in an effort to demonstrate a niche. The composite picture occurring as a result of the lesion plus the accompanying spasm is so characteristic that the demonstration of a niche, is as a rule, simply a dispensable diagnostic refinement.

Peptic ulcers in the lower esophagus are usually more satisfactorily diagnosed by means of the esophagoscope than through x-ray examination and, therefore, although some writers have described niche deformities in this location, they are probably of more academic than practical interest to most workers. Niche deformities in the diagnosis of jejunal and gastrojejunal ulcers are, on the other hand, of great importance and of immense diagnostic value, when found. The



diagnosis of these lesions is difficult and, in most cases, somewhat uncertain at best and the discovery and demonstration of an undoubted niche in the area clinches the diagnosis in a most satisfactory way. Unfortunately, the niche is demonstrable in a relatively small percentage of such cases!

#### DISCUSSION

**C. W. Dowden, Louisville:** Dr. Enfield has covered this very limited field so thoroughly that there is practically nothing left for discussion. It seems to me, however, that it is important to remember that the direct signs such as barium retention, the hour-glass stomach, incisura, etc., and the indirect signs, such as persistent spasm and disturbances of peristalsis, hypersecretion, and so forth, may in a varying number of combinations represent nothing more than reflexes of numerous disturbances throughout the remainder of the gastro-intestinal tract. Other combinations may represent lesions in the stomach, or in the duodenum, but there is only one sign that is pathognomonic and characteristic of gastric ulcer, and that is the niche.

It would seem that if the niche is present in from seventy-five to eighty-five per cent of cases, we should be able to make correct diagnosis in seventy-five to eighty-five or ninety per cent of all cases. It is not as easy as this, however. The search for the niche must include a thorough investigation of the posterior wall of the stomach, of the cardia, of the second portion of the duodenum, and following gastro-enterostomy search of the jejunum, and so forth, and this pre-supposes a knowledge of special technic, the use and the action of anti-spasmodics, the value of the various indirect signs, and finally an unusual amount of patience and perseverance on the part of the operator, and frequently oft-repeated examinations.

The roentgenologist with these qualifications and exercising this care will make a correct diagnosis in probably seventy-five to eighty or ninety per cent of such cases. Such findings, however, represent the work of a comparatively small number of very careful, expert, well trained x-ray men to which class Dr. Fugate and Dr. Enfield belong, and who report their results. From such men as these we get such wonderful figures of correct diagnoses. A very much larger number of men, however, who operate x-ray machines, if the statistics were available, would not be able to report anything like this degree of success.

It resolves itself, therefore, not so much into the value of the niche in the diagnosis of peptic ulcer as the value of the man who is searching for the niche.

**Austin Bell, Hopkinsville:** I don't know that I have anything to add. I was surprised at being asked to discuss it. Of course, this is a very limited field, as Dr. Dowden has said, and

it seems to me, after all, the x-ray is invaluable in our diagnosis of peptic ulcer. Primarily, however, we should get a history of the case, which should be taken very accurately, and after that a careful physical examination made, and then I believe our x-rays should be used as a check after we have made up our minds as to what we have.

The niche when once discovered is unquestionably the most valuable indication that we have, but I do feel it is important for us first to take an accurate history and take it in detail and observe the case not once, but many times, and follow that by a careful examination

#### THE INFLUENCE OF ETIOLOGY ON PROGNOSIS IN HEART DISEASE\*

EMMET FIELD HORINE, M. D.

and

MORRIS M. WEISS, M. D.

Louisville.

With the general acceptance of the etiological classification of heart disease and the disappearance of the use of such vague clinical and pathological entities as "cardio-renal disease," "chronic myocarditis," and "mitral insufficiency," the ability of the clinician to determine the immediate and ultimate prognosis of his heart patients was more firmly established. It had long been appreciated that the course of heart disease in the young was quite different from that in the adult and that patients with organic valvular involvement died earlier than patients with simple cardiac hypertrophy. But the entire prognostic phase of the heart disease was based on insecure foundations. For instance, with the former simple anatomical diagnosis, no attempt was made to differentiate between the varied types of aortic insufficiency. It is now well known that an inactive aortic insufficiency, rheumatic in origin, carries a relatively good prognosis in contrast with a syphilitic aortic insufficiency which is always active and usually progressively fatal. Likewise when a functional diagnosis alone is made the prognosis is obscure. Paroxysmal tachycardia varies in its seriousness from a distressing symptom in a healthy individual to an unfavorable sign in a patient with coronary disease. And finally the functional capacity of the patient is related to the etiology. Oedema occurring in patients with hypertensive and arteriosclerotic heart disease responds more favorably to treatment than does the oedema occurring in syphilitic heart disease. Thus

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the etiological classification of heart disease delimits the individual patient and enables us to follow, with broader perspective, the natural course of his disease.

The dependence of prognosis on etiology is strikingly illustrated in patients with auricular fibrillation. It is impossible to formulate a prognosis in a heart case solely from the presence of this irregularity. The older clinicians frequently noted an "arrhythmic pulse" in their decompensated cases and long before the mechanism of auricular fibrillation was ever suspected, the "mitral pulse," had an ominous prognostic significance. But with more refined clinical and instrumental methods of examination it was then found that this type of arrhythmia could occur in apparently healthy young adults. We also occasionally see elderly individuals in whom the rhythm had become permanent, but who are scarcely conscious of its presence and who show no objective signs aside from the irregular ventricular rate. It is true that a ventricle beating rapidly and irregularly at a rate of 150-200 per minute is grossly inefficient and if uncontrolled would cause heart failure. The ventricular rate in auricular fibrillation is however readily controlled by digitalis and there is no convincing evidence that a slow irregular ventricle per se tends towards marked cardiac inefficiency. Hence the expectation of life in auricular fibrillation depends on factors other than the arrhythmia itself. In addition to those factors which usually influence the outlook of the individual case such as age, the integrity of the myocardium and the degree of cardiac decompensation if present, the etiology of the associated condition is of prime importance. There are four large etiological groups with which auricular fibrillation is associated: rheumatic heart disease, hyperthyroidism, essential hypertension and arteriosclerotic heart disease. If the fibrillation is associated with hypertensive heart disease the end can usually be pre-saged. We have never seen such a case live more than a few years. In hyperthyroidism however the presence of the arrhythmia does not influence the usual successful surgical treatment of the disease. With proper pre-operative care the mortality, provided the fibrillation is not of too long duration, is very little different than in cases with regular rhythm. When the auricular fibrillation is associated with arteriosclerotic heart disease the prognosis is often not adversely affected, provided severe coronary sclerosis or occlusion is not present. We have under observation a man 90 years of age, with arteriosclerotic heart disease and auricular fibrillation who has had a totally

irregular heart for approximately fifteen years. It is because of such cases that we do not attempt to establish normal sinus rhythm in fibrillation associated with old arteriosclerotic heart disease since the possible dangerous effects of quinidine more than counter-balance any improved heart function that might result from reversion to normal rhythm. When fibrillation is found in rheumatic heart disease a different prognosis must be offered. The expectation of life in rheumatic cases with this form of irregularity after the second decade has been estimated to be no longer than an average of six years. In children the outlook is very grave. We have thus seen that a diagnosis of auricular fibrillation is not complete unless the associated clinical conditions are also identified.

Patients with heart pain and its variants can no longer be designated simply as having angina or pseudo-angina. Angina pectoris should be considered a symptom and not a disease. An attempt should be made in every instance to determine the etiology of the heart pain if a careful prognosis is to be desired. Precordial pain in a patient with inactive rheumatic heart disease is most often merely a disturbing factor in the disease and has no special bearing on the prognosis. In contrast angina of effort in a hypertensive individual forebodes sudden death or serious cardiac disability. It has been our experience that classical angina of effort in the older age groups is coronary artery in origin. Further every patient presenting such a syndrome, if observed over a sufficient period of time, will eventually develop signs of a frank coronary occlusion, hence the unfavorable outlook of so-called angina pectoris. Although the immediate prognosis is the same in myocardial infarction occurring in either arteriosclerotic or hypertensive heart disease, the ultimate outlook, with recovery, is better in the former.

A history of heart pain has an especially ominous prognosis in patients with cardiac enlargement and normal or low blood pressure—cases which we designate as "hypertensive heart disease without hypertension." Even though the former level of the blood pressure is unknown it is our contention that such individuals always present clinical or pathological evidence of a pre-existing hypertension. Aside from the otherwise unexplained cardiac hypertrophy these patients may show ophthalmoscopic signs of a previous hypertension, impairment of renal function or even uraemia, coronary types of electro-cardiograms as are so often found in the known hypertensive individuals and finally autopsy discloses arteriolarsclerotic or primary contracted kidneys which always



evidence a hypertension during the life of the individual. Because of the normal or reduced pressure found when first examined these patients are frequently classified wrongly. If an apical systolic murmur is present a diagnosis of "mitral insufficiency" is made. If a murmur at the base is heard some other valvular diagnosis follows while if no murmur is audible, the diagnosis may be "chronic myocarditis" or another equally obscure entity. The American Heart Association merely suggests that these persons be placed in the group of "unknown etiology." The actual and alarming frequency of hypertensive states is undoubtedly obscured to a great degree because of such wrong classifications. Since the low blood pressure in these cases is the result of marked myocardial weakness the prognosis must be very unfavorable.

Heart pain in syphilitic heart disease evidences activity. It is an expression of extension of the luetic process in the aorta to the mouths of the coronary arteries. Patients with effort syndrome frequently complain of heart pain. This gradually disappears with treatment directed towards the effort syndrome. Cardiac pain complicating hyperthyroidism occurs infrequently and will diminish in intensity or entirely disappear following thyroidectomy.

The prognosis of patients with aortic insufficiency is markedly influenced by the etiology. Syphilitic aortic insufficiency indicates a far advanced stage of syphilitic aortitis and is soon accompanied by rapidly progressive heart failure. In contrast aortic insufficiency, rheumatic in origin, bears with it a relatively good prognosis when the rheumatic process is inactive. During the physical examination of soldiers discharged from active duty in the World War an individual would occasionally be found with rheumatic aortic insufficiency which had been overlooked in the examination made prior to induction into service. Such individuals were none the worse despite the severe physical exertion of active army life. Were the valvular lesion syphilitic in origin heart failure in the majority of cases would undoubtedly have ensued. Intermediary in outlook between these two types of aortic insufficiency are those which are hypertensive and arteriosclerotic in origin. The functional aortic regurgitation associated with severe anemia, primary or secondary, disappears with improvement in the anemia.

Using auricular fibrillation, cardiac pain, and aortic insufficiency as examples, we have tried to impress you with the influence which etiology exerts upon the prognosis in heart disease. A diagnosis in a heart case is

incomplete unless it considers (1) etiology and whether active or inactive; (2) structural changes; (3) rhythm and (4) functional ability.

## HEART RUPTURE\*

A. J. MILLER, M. D.

Louisville.

**Chief Complaint:** The patient, a white male, 71 years of age, entered the hospital August 22nd, 1930, complaining of pain in the chest and shortness of breath.

**Present Illness:** The onset of the present illness was not determined because the patient disliked to be questioned or examined. He preferred to be left alone. He admitted feeling ill for two weeks or so previous to entrance. Twenty-four hours before entrance, the patient suffered a severe, dull pain, anginal in type, localizing over precordial area and radiating to the epigastrium. It lasted several hours and an attending physician administered morphine hypodermically. At the time of entrance, he still complained of pain and shortness of breath.

**Physical Examination:** The patient was very lean, he disliked being examined or questioned. Axillary temperature 94° F., pulse was not obtainable at the radials, but was counted at 156 in the carotids. Pupils were constricted. Respirations were 32 per minute. Percussion note over lung area was hyper-resonant. Heart sounds were not audible or palpable. Blood pressure could not be registered. Patient was given bed-rest, hot water bottles were applied to the body, a good covering of blankets was supplied and an ice bag placed over the precordium. One hour later the pulse at the carotids was 106. Respirations were still rapid and labored. Two hours after admission, blood pressure was read at 89 systolic, and 60 diastolic. Radical pulsations were present, but fleeting. Pupils were not constricted. Erythrocyte count 4,320,000; leukocytes 24,100; hemoglobin 95%. Polymorphonuclears 82%, mononuclears, 18%. The Wassermann reaction was negative.

**Clinical Course:** The patient seemed slightly improved after a few hours. The respiration receded to 24 per minute and the temperature rose to 96.4° F. but the pulse gradually declined to 55 per minute and was palpable at the wrist. Twenty-two hours after admission, the attending nurse noted his condition as satisfactory and had given

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him the usual morning care. She left the room for a glass of water and upon returning with it for the patient, found him dead.

#### NECROPSY

**External Examination:** The body was of a lean, elderly white male. Rigor mortis was well advanced.

**Body Cavities:** Relations were normal. In each pleural cavity there was 40 c.c. of



Posterior view of the heart, showing the dilatation of the infarcted area and the ecchymosis of the infarct.

The tortuous, beaded coronary arteries are especially noticeable in the pericardium of the right ventricle.

clear straw colored fluid. The peritoneal cavity contained no excess fluid. The pericardial cavity is described below with the heart. There were dense, old adhesions at each apex.

**Heart:** In situ the pericardial sac was markedly distended and tense. Its color was darkened by the blood in the pericardial cavity. On opening, about 600 c.c. of pure blood, most of which was clotted, escaped. The pericardial lining was everywhere smooth and glistening.

Heart weighed 300 gms. It was small and collapsed. The left ventricle had a bulging, aneurysmal mass in the upper part of the left border near the atrio-ventricular groove. This distended portion was triangular in shape, with the apex conforming to the base of the heart. It measured 5 cms. at its greatest diameter, antero-posteriorly. On

the posterior surface, near apex of this area, was an opening 6 mm. in diameter in the pericardium, which extended through the muscle into the left ventricle. About this opening was a large ecchymosis.

The heart was opened at its apex so that the chambers and musculature could be examined. The dilated portion was thin and the pericardium covered by laminated blood clot. The musculature on the inner side was very light colored and firm. Papillary muscles were all atrophic and scarred. There were numerous small scars in the muscle of the left ventricle near the apex and also in the septum.

The valves were not remarkable except that they were slightly thickened and stiffened because of arteriosclerosis.

The coronary vessels in the pericardium were tortuous, thickened and beaded. The lumina were markedly constricted. Branches of left coronary were dissected and opened in situ, but no thrombi or emboli were found. Sections of these vessels show the lumen of the anterior branch of the left coronary almost closed.

#### OTHER VISCERA

There was a moderate amount of chronic passive congestion in the liver, lungs, spleen and kidneys. The bases of the lungs were markedly scarred, but there were no evidences of active tuberculosis. The kidneys revealed a slight amount of arteriosclerotic scarring. The aorta was moderately damaged because of arteriosclerosis, limited chiefly to the intima.

**Post-Mortem Findings:** Infarct of lateral wall of left ventricle; rupture of left ventricle; hemopericardium; arteriosclerosis, senile type; chronic passive congestion of lungs, liver, spleen and kidneys; healed tuberculosis, pulmonary apices.

#### SUMMARY

The disease which lead to this patient's death is arteriosclerosis, more marked in the coronary vessels than elsewhere in the portion of the body examined. The anterior branch of left coronary became so thick-walled that the lumen was almost occluded, resulting in infarction of a portion of the lateral wall of the left ventricle, which finally ruptured and resulted in death, because of hemorrhage and pericardial pressure. The chronic passive congestion is secondary to the damaged heart muscle, which in turn, is the result of coronary arteriosclerosis.

It seems probable, from the history, that this occlusion occurred two weeks before death, as the patient indicated, and that the dilatation of the infarcted portion possibly occurred forty-six hours before death, at the



time of the severe precordial pain. The low blood pressure and the non-palpable radial pulse were secondary to the weakened myocardium.

### DISCUSSION

**J. Garland Sherrill:** I had an opportunity to study this case. Heart lesions are always interesting, particularly those lesions which develop late in cardiac disease. We may learn much from such fatalities.

Within the last month or two several operations have been performed for thrombosis of the coronary arteries, and one or two patients have been relieved by that step. It takes a very bold surgeon to invade a crippled heart. In the case reported probably no surgery would have been of benefit. A minor lesion developed and rupture finally occurred at that point. It is remarkable what the heart will stand. When a patient exhibits evidence of a cardiac lesion of this type—coronary artery obstruction—the question frequently arises whether the lesion may not be in the abdominal cavity. I was called to see a man in this city who had symptoms of gastric ulcer and was treated for this condition, for a number of years. The symptoms resembled those of rupture of the stomach. We sent him to the hospital for observation. For some reason I did not believe his condition due to a gastric rupture and thought an operation was not indicated. The lesion was not in the stomach. The man died from a cardiac lesion. Such cases are well worthy of our attention.

**Emmet F. Horine:** Dr. Miller has presented an unusually interesting case report. The etiology was clearly arteriosclerotic. The history was typical of myocardial infarction and, as is usual, was accompanied by evidence of heart failure, low blood pressure and leucocytosis. Frequently there is also moderate elevation of the body temperature but this man was apparently in shock to the degree that his temperature was first subnormal and later only came to the normal level. Since death may be as instantaneous from an infarction alone as from rupture one can only guess as to the possibility of a rupture and permit the autopsy to settle the question.

A very interesting feature of this case was the finding of several scars in the wall of the left ventricle, these scars being doubtless the sites of previous small coronary occlusions from which the patient recovered. If a careful history could have been obtained it is probable that typical seizures of status anginosus would have been described. Thus far my records seem to indicate that at least half the patients having a coronary occlusion make a partial and, possibly five per cent, a complete recovery.

The area infarcted, which later underwent aneurysmal dilatation and rupture, was in the

left ventricle which is the usual site in 75 to 80 per cent of the cases. A quite unusual feature was that despite careful and thorough examination neither thrombosis nor embolism could be found to account for the infarction. It is somewhat difficult to locate emboli in the coronary vessels. Particularly if the vessels are already almost occluded as the result of arteriosclerotic processes the extremely tiny embolus or thrombosis required to produce infarction would be hard to find.

The clinical picture of acute coronary occlusion is, in most instances, so striking that a diagnosis can be made readily. In the atypical types with abdominal pain or in the painless cases considerable difficulty may be experienced in making a diagnosis. Fortunately electro-cardiographic study is of great value. After the diagnosis is confirmed it is necessary, above all else in managing the case, to insist on four full weeks of absolute rest in bed so as to permit of complete repair of the infarcted area.

**A. J. Miller, (in closing):** I have little to say in closing except in defence of my statement that thrombosis or embolism was not present. I made this positive statement after a very careful examination. I am aware of the prevailing opinion that in all these cases embolism or thrombosis occurs. However, some observers believe this is not necessary. I happen to be one of the latter group, and have so expressed myself as a result of hours of labor. In other portions of the body thrombosis or embolism is not necessary—for instance in infarction of the kidney, and I can see no reason why we should assume it to be present in every case of coronary occlusion.

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**Postvaccinal Encephalitis in Infancy.**—A new case of postvaccinal encephalitis in infancy is recorded and twenty-one other cases are quoted by Scott. These cases are shown to fall into five clinical groups, whose symptomatology is described. The cerebrospinal fluid is found to be normal in almost every case. There was no particular day after vaccination on which the bulk of cases occurred. The postmortem examination of one case and the typical pathologic picture are described. The differential diagnosis is discussed. The prognosis is shown to depend considerably on the clinical form of the disease. The extreme rarity of this disease in infancy as compared to other ages is illustrated by statistics. The etiology in general is discussed. The relative immunity in infants is discussed and a suggestion is made that family history may be of value in fore-seeing the liability of the infant to the disease.

## MY EXPERIENCE IN OBSTETRICS\*

J. M. MORRIS, M. D.

Louisville.

First, I regard prenatal care of the great importance. A patient should be seen and examined as soon as pregnancy is determined, and if all is well with her, she may be allowed to pass the first three or four months without attention. Beginning at the end of the fourth month she should be seen every two weeks until the end of pregnancy, during which time the urine should be examined twice weekly, also blood pressure taken, and heart and lungs kept constantly under care.

Next, I would send all my patients to a hospital or infirmary when possible, especially primiparae. The chance to save the baby alive is far greater in the hospital than in the private home. Also the after treatment of mother and child is much more satisfactory in the hospital. Some patients, however, are not financially able to pay the expense of the hospital. In such cases we must do the best we can at home.

I will speak of the use of morphine and pituitrin in obstetrics. Some may differ from me with reference to the use of these two products, but I will speak only from my own experience with reference to the use of morphine. I will say that when I find a patient who has suffered for many hours without perceptible progress, I usually administer 1-4 gr. of morphine, hypodermatically, which gives her several hours of complete relaxation and rest. At the end of that time her pains will return, and examination shows that some dilation has taken place, notwithstanding she has no great amount of pain, and labor will progress much more satisfactorily.

With reference to the use of pituitrin, I regard it as the most valuable product known to the obstetrician, and the greatest blessing to the parturient woman; but a thorough knowledge as to when and how to use pituitrin is of the utmost importance. When given too early it does no good, but may do a great amount of harm, both to the mother and to the child. To the mother it may be the cause of a ruptured uterus, or a cerebral hemorrhage to the child. We may ask, when shall pituitrin be given, how much and how often? I will say only when complete dilatation has taken place, to warrant against the accidents just mentioned, and sufficient dilatation can only be determined by careful examination and experience.

As to the administration of pituitrin when once begun, I usually administer  $\frac{1}{2}$  c. c. hypodermatically, every 30 minutes, until at least 2 c. c. have been given, or until delivery is completed. Most patients do not require a full 2 c. c., as delivery will occur usually before that amount is used. The effect of pituitrin lasts only about 20 or 30 minutes.

As to the use of forceps, I will say that during the last ten years, since the use of pituitrin began and more patience, especially the latter, I do not find it necessary to use instruments in one-tenth as many cases as I formerly did. 99% of normal pregnancies can be delivered without instrumental aid, if proper time and attention are given.

And now I want to say a word about Cesarean section. I am fully persuaded this operation is too often done, and yet there are cases in which conditions fully justify it. First, I want to say in cases of placenta previa, where the obstruction is complete and hemorrhage has already begun before labor has been established by regular pains, then we should not hesitate to recommend intervention at once. Malformation of the pelvic outlet or narrowing of the outlet sufficiently to materially interfere with the passage of the head, is another indication for abdominal delivery. Another indication for Cesarean section is when, after a sufficiently long period of active labor, little or no dilatation has taken place.

As to the after treatment of mother and child, I shall have nothing to say except that only those well experienced in this work, should ever assume such a responsible position, especially with reference to the care of the infant's eyes.

During the last ten years my records show that I have delivered between four and five hundred mothers. Only two of this number demanded Cesarean section. In these cases both the mother and child were saved. Out of this number of deliveries my forceps cases were very few, with probably three or four deaths.

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**Arthritis of Feet.**—Elliott concludes that painful feet which do not respond to postural treatment are likely to be arthritic, with or without manifestations elsewhere in the body. Feet in which the pain is unduly severe may be presumed to be arthritic. Sudden onset of extreme pain in feet should be considered arthritic in origin, and search should be made for the primary focus. Pain in the heel of the so-called spur type is in reality of infectious origin arising from an inflammation of the deep calcaneal bursa.

\*Read in Symposium before the Jefferson County Medical Society, November 17, 1930.



## CONTAGIOUS DISEASES FROM THE VIEWPOINT OF THE GENERAL PRACTITIONER\*

E. E. BUTLER, M. D.

Louisville.

This subject was assigned to me by one of the members of the program committee, and I shall endeavor to express my opinion as a medical practitioner. However, in so doing perhaps I shall be discussing the subject from the same point of view as would the surgeon or specialist.

Contagious diseases differ from other diseases only in that they may be transmitted from the diseased to the unprotected individual. Contagious diseases may be better called transmissible diseases. Transmissible diseases may be divided into two groups, namely; (1) diseases which may be transmitted through association, and (2) diseases which may be transmitted through an intermediary.

The first group includes syphilis, diphtheria, gonorrhea, scarlet fever, pneumonia, tuberculosis, stomatitis, measles, German measles, influenza, typhus, mumps, pertussis, smallpox, chicken pox, poliomyelitis, meningitis, acute cerebro-spinal meningitis, and plague.

The latter group includes gonorrhea, typhoid fever, malaria, yellow fever, syphilis, plague, typhus, tuberculosis, cholera, stomatitis, scarlet fever, diphtheria, measles, chicken pox, and pertussis. As you may observe some of the above diseases are classified in both groups.

It is my opinion that the majority of medical practitioners are rarely concerned about the possibility of becoming stricken with the contagious diseases they are called upon to treat. They should, however, be constantly alert and use careful measures not only to protect themselves but to avoid acting as an intermediary source of spreading the disease to other patients or to their own families.

I believe it is rare for physicians who take ordinary precautions to contract contagious diseases from their patients. Many times the attending physician becomes negligent in the conduct of a case of contagious disease. Any physician who, without washing his hands, makes a practice of going from a child ill with diphtheria or scarlet fever to patients otherwise affected, is a source of great danger, in any community. If a clean gown is not available for use in entering the room of a patient suffering a contagious disease a good rule is to remove your coat and turn up your shirt sleeves to the elbows be-

fore entering the sick room. After leaving the patient the physician should thoroughly wash his hands with soap and water. If this is not done we greatly risk infection to ourselves besides may carry diseases to our patients or own families. Furthermore, patients know these facts and are sure to take notice of any omission of them. Likewise our thermometer, stethoscope and other instruments that may be used in examination of patients with contagious diseases, should be properly sterilized. It is a good rule and has a good psychic effect on patients to always sterilize your thermometer before and after use in the sick room. Alcohol serves well but should be washed off before use as it causes some unpleasantness to the patient's mouth and tongue.

Another important point is that of reporting to the proper health authorities, promptly, all cases of contagious diseases. This appears, sometimes, to the busy practitioner to be a great deal of extra trouble, but nevertheless should be done. A good rule to follow is to keep some of the post cards (that are provided by the health office) with you at all times or at a convenient place about your desk so that you do not delay making the report of a contagious disease as soon as you see it. It is very easy to postpone sending in the report, and sometimes this is afterward overlooked thereby holding one liable to some embarrassment and possibly a fine which can be imposed for failure to report a notifiable disease.

In calling a consultant in a case of contagious disease, we may use the same rule as in any other disease, namely; calling one if you feel that you need assistance in the diagnosis or treatment, or if the family desires such. Here we should judge by the seriousness of the case and not by its contagiousness.

**Treatment of Surgical Tuberculosis with Methylated Antigen.**—Blankoff describes thirty-seven cases of surgical tuberculosis in which methylated antigen was used. Twelve of the patients were cured, eleven showed definite amelioration, ten did not respond to the treatment, and four were still under treatment when the article was written. All the cases in which the treatment was used were longstanding ones in which other methods of treatment had failed. The twelve cures and eleven ameliorations obtained are, therefore, more significant than the ten failures. In addition to the classic method of injection, compresses were found to produce excellent results, especially when the lesions were superficial or easily accessible. A combination of antigen treatment with ultraviolet rays was also used successfully in several instances and materially aided rapid progress.

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## RELATION OF THE GENERAL PRACTITIONER TO THE SPECIALIST\*

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Specialism in medicine is nothing new. History shows that in ancient India there was a specialist for every disease. From time immemorial it has been the custom for the general practitioner and the specialist to work hand in hand. It is an old saying that one hand has to wash the other; one hand cannot do the work; so in general practice we have to depend upon the specialist to perform duties concerning which the general practitioner has no knowledge.

The relation between the general practitioner and the specialist cannot be estimated, for on the specialist's opinion hinges many complex and direct questions, how and what to do for suffering humanity.

For the young man who has the honor of having secured a diploma from a medical university, and expects to practice the art of medicine, I would advise him to proceed to some outlying district and let that spot instill into his mind and body the real, fundamental principles of the practice of medicine; such as he will never meet in subjects that are cared for in hospitals or institutions; the spot where he began to excavate and lay the foundation for the building of the mind; how and what real benefit there is to be derived from such an experience, he will never lose sight of.

The physician, one who practices, or one who is skilled in the art of healing and in methods of preserving and promoting health, especially one who is legally authorized to practice medicine, state examinations for this calling are generally held, and to those who successfully pass, a license to practice is granted.

As between the practicing physician and the patient, the relations are privileged and confidential, and the patient's secrets intrusted to the keeping of the physician are inviolable, the state not even requiring these to be made known in legal procedures.

The inter-relation between the practicing physician and the specialist is so intimate that it is impossible to draw an exact line of separation. Changes which supervene without altering the disease or destroying the identity of the body, are physical changes and are a part of the study of the practicing physician; changes by which the identity of the body is altered, such as when diseases are

combined to form and affect other parts of the body, do not belong to the practicing physician, but to the specialist. This gives a broad region for investigation by both the physician and the specialist.

The specialist, with all the time and opportunity and material to utilize, can qualify himself in research of all the latest methods obtainable, to his entire satisfaction, with direct and implicit confidence, whatever he is called upon to do, and assist maintenance of life longer, and ultimate recovery of the patient whatever the cause of the disease may have been; so the specialist plays an important part to the general practitioner who will take ample time and not delay until it is too late. It is a great pity that the old-time country practitioner could not avail himself and his patient of such a godsend as a good, true, upright, honest and conscientious specialist, who should have the heartfelt sympathy of any human being he is called to help and impart this precise skill.

The relation between the general practitioner and the specialist is all, and ought to be, what the Golden Rule implies, that the general practitioner do unto the specialist as the specialist shall do unto him; in other words, do unto others as you wish others to do unto you. It must be remembered that the specialist obtained the butter for his bread from the general practitioner.

To ascertain the causes of physical ailments, experiments are performed in which the conditions are under control of the observer, and are varied in order to determine which conditions are essential and which are accidental, then exact decision is made determining the relation between cause and effect of the disease. For instance, someone is ill, had an accident, perhaps injury of internal organs; with some obscure certainty as to what course to take; you apply and try various ways and means to ascertain what may exist; not quite satisfactory of procedure, you will call a co-operator who is a specialist in his particular branch of human economy where the injury or cause may be, so that restoration may be obtained by the latest procedure and the patient made comfortable by the recognized skill he has; hence the importance of the relation of the general practitioner to the specialist in the restoration of health and happiness to the patient.

The word specialist is not confined to the medical profession altogether. Any outstanding person who is so power-controlling or overpowering as to overcome obstacles with great ease, is also a specialist in his or her performance of the feat, which is miraculous in various instances.

As was shown and emphasized, in many

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instances, at the convention of the Southern Medical Association just passed into history, in every medical meeting there are always some outstanding points of interest to the general practitioner, as well as more enlightenment to the specialist.

### DISCUSSION

**A. R. Bizot:** It has been my pleasure on several occasions during the past year to preside over the deliberations of this society. You are familiar with the ruling that no cases shall be reported in discussing essays or set case reports. Last week I attended several sessions of the Southern Medical Association. If I had been in the chair I would have called every man, because every man who discussed a paper reported a case or two of similar kind that he happened to recall.

I would not have spoken tonight, except the chairman of the program committee asked me to read a paper at this meeting on surgery from the general practitioner's standpoint. For very obvious reasons I declined. The program committee has to be congratulated on the excellence of the papers read before us tonight.

I would like to discuss briefly the paper on contagious diseases from the general practitioner's standpoint. In certain of the contagious diseases the general practitioner requires no consultations. However, there are other important phases of this subject which demand consideration. To illustrate:

Within the last ten days I was called to see a child whose parents lived in an apartment house. The child had a severe attack of scarlet fever, and a fatality seemed imminent. Inquiry disclosed the fact that two or three other children in the apartment house also had scarlet fever. I wondered if these cases had been reported to the city health department. These children undoubtedly should have been quarantined. No contagious disease tags had been placed on the building prior to the time my case was reported.

This morning I saw a child with diphtheria in a neighborhood where I had other patients. After leaving I reported the case to the city health department and a tag was placed on the house. The parents were greatly perturbed by this action, and stated that Doctor So and So had two cases of diphtheria in the neighborhood and neither of them was reported and the house was not tagged. It is our professional duty to report all cases of contagious diseases. I do not know just how we can bring this about, but whenever I hear of such cases I am going to ask the physician to report them. For physicians to try to ingratiate themselves with the family by not reporting contagious diseases and tagging the houses is entirely wrong.

**Edward Speidel:** I would like to discuss Dr. Morris' paper. I think he made some very good suggestions in regard to giving the prospective

mother prenatal care, and of course it is ideal to deliver these patients in the hospital; but for obvious reasons this cannot always be done.

An extremely important feature, after delivery, is treatment of the baby's eyes. I claim that treatment of the baby's eyes should be given attention either by the physician himself, or by a nurse in his presence, immediately after the child is born. It has been my custom to follow the rule of the state board of health in this matter, that is use one drop of silver nitrate in each eye, and this should not be neutralized. One precaution should be observed in treating the baby's eyes is to avoid dropping the solution directly on the cornea, otherwise the silver nitrate may cause corneal ulcer. If silver nitrate is not used there is danger of the development of ophthalmia which may be serious. Under such circumstances it would be difficult to explain why this important procedure was omitted.

As to the use of pituitrin: I am sorry our old friend, Dr. Wm. B. Doherty is not present, as he could deal with this subject much better than I can. I cannot agree with Dr. Morris' statement, and I think it is a very dangerous statement to be published in his paper. We are trying to get away from large doses of pituitrin, because we find if there is a full dilatation and normal position, sudden expulsion of the fetus may occur with much laceration of the mother and danger of asphyxiation of the child. These are certainly serious accidents in obstetrics. If pituitrin is used, small doses should be given, not more than three minims, and then only when the head is engaged, with full dilatation of the cervix and a normal position.

**Harper E. Richey:** There is one phase concerning the relationship between general practitioners and specialists that has not been mentioned. I am speaking from the standpoint of the younger practitioners of medicine, who refer patients to specialists in different lines of work.

I have been engaged in medical practice for three years, and of the patients I have referred to specialists I have received only one written report from these men. This seems to me to be a mistake. I would like to have a complete record of my cases on file, and would appreciate it if the specialist would furnish me with a written report with diagnosis and suggestions concerning treatment. It is true specialists usually call over the telephone giving brief information, but we would like to have a full record. If I may make the suggestion, I think it would be a good idea, and we younger men would appreciate it, if the specialist would furnish us with a written report in all cases.

**Chas. K. Beck:** I am very glad to have heard the suggestion made by Dr. Richey and believe it is a very good one. I have made written reports on referred cases to some extent, but not always. Many of my reports have been verbal.

To illustrate the importance of keeping complete records: About two years ago a gentleman came to my office and took a seat in the waiting room. My office attendant notified me of his presence. I had not seen him for twenty years but recognized him at once. He said: "Doctor, I came to obtain a birth certificate of my daughter; she wants to start working but cannot do so until she presents her birth certificate." I found the book in which my records were written in 1908, and gave him the desired certificate. And, by the way, that was my first case in obstetrics when I began the practice of medicine. If I had not preserved the record, my memory might have failed me, and I could not have assisted him.

I believe those of us who are doing special work should write a complete report of our findings for the general practitioner or family physician who refers the patient to us and keep a copy in our files for possible future use. We may wish to consult our records at any time. The question frequently arises whether the tonsils have been removed or not. We may look into the throat and be unable to determine this fact. We may want to know whether a nasal operation or some other operation has been performed. The specialist who actually did the work may have moved away or passed on to other regions. Then the family physician can look at his records and see just what if anything was done. We can thus determine whether an ovary or oviduct has been removed or some other operation performed. These things may be a great help in giving future advice to the patient.

I believe the relationship between men who are doing special work and those who are in general practice, or specialists in other lines, should always be cordial, honorable and honest. In dealing in that way with each other there should be no reason for suspicion or fear that the consultant, specialist or what not, is going to undermine the man who calls for assistance. Then there will be more calls for assistance, and we can give the patient the benefit of our skill to a greater extent than in any other way.

When I was a general practitioner, not so many years ago, there were many things I did not undertake to do, realizing that there had been no opportunity to perfect myself in certain things and therefore could not do as well as somebody who had given more attention to special lines of work. I never undertook to remove a foreign body from the cornea; the patient was referred to a specialist in that line. I did not undertake to do any surgical work except the treatment of fractures and small things in minor surgery; the patients were referred to a surgeon. There were many other things I did not undertake to do; the patients were referred to somebody doing special work along that particular line. I did not send my general work to

other physicians. I handled these cases myself, because I believed I was as good a general practitioner as there was anywhere.

It is impossible for a person to know everything connected with the human body and all the diseases that may occur. In the interest of our patients we should consult freely with our confreres and get their counsel and advice.

**James S. Lutz:** I have enjoyed the papers very much. To those of us who see obstetrical patients day after day, Dr. Morris' paper was splendid. I want to agree with him in all he said, but take this opportunity to put both my O. K. and condemnation on the use of pituitrin. There is no drug that has been of greater help to the obstetrician than pituitrin; at the same time there is no drug that ever made invalids of women as much as pituitrin. This drug acts quickly and unfortunately gives us no warning of danger. In many cases it is absolutely harmful.

Any physician who takes an obstetrical case, who agrees to attend your wife, sister or daughter during childbirth, takes the woman's life in his hands, and if he is not willing to give her the attention she deserves, he should not be permitted to use M. D. after his name. Any physician who accepts an obstetrical case and hastens labor by administering repeated doses of pituitrin because he is in a hurry to reach the golf links, should not be allowed to practice obstetrics; he has no business to accept the case unless he is willing to give the patient the necessary time and attention. As the late Dr. Henry E. Tuley used to tell us, Meddlesome wifery is the worse form of obstetrics.

As to cesarean section: It is appalling to note the number of cesarean sections performed in this country. I have been practicing medicine for twenty-five years, and am sure I have taken care of my share of women in childbirth; during that time I have had cesarean section performed three, or perhaps five times. These are cases in which we need the specialist's help, and we should be sure to select a careful and experienced operator. The physician who is unwilling to give the necessary time and care to his patients, without administering large doses of pituitrin, should not be allowed to practice obstetrics.

The care of the baby's eyes immediately after delivery is a very important matter. The few cases of ophthalmia neonatorum I have seen followed delivery by midwives. I think there are very few physicians or obstetricians in Louisville who do not use silver nitrate instilled into the baby's eyes immediately after birth. However, I think it preferable to use 25 per cent argyrol solution. I have never seen a case of ophthalmia following the use of argyrol.

As to the question of contagious diseases: I believe there is little danger of spreading infection if the physician uses ordinary precautions;



he does not have to expose himself very much in treating contagious diseases. Of course if he is going to a confinement case, after visiting a patient who has some contagious disease, he should wash his hands; but no one these days delivers a woman without rubber gloves and the use of a clean gown.

**Edward R. Palmer:** Despite what has been said about specialists being uninterested in the program tonight, I want to state that I have enjoyed the papers very much. Everything the essayists said is of practical interest to all of us. I attend this society as often as anybody, and it is rare that anything in my particular line is discussed here. I seldom come to a meeting, however, that I do not leave feeling that I have been very well repaid for the trouble of coming here. I heard a paper by Dr. John D. Allen a few weeks ago on the Schilling blood count. It was a wonderful paper and very interesting. Another thing was the Aschheim-Zondek test for pregnancy. I thought that was extremely interesting.

Tonight I have particularly enjoyed the papers of my two older confreres, Dr. Morris and Dr. Kiefer. They will recall I was brought up, so to speak, in that old school in which specialists were not born. A specialist in those days started as a general practitioner; he did everything. I have done obstetrics and abdominal surgery and almost everything else. It was only later in life that I became a specialist. Every type of specialist is better fitted for his work if he has spent several years in general medical practice. However, I am fearful that the modern tendency is for a young man to enter medical college with his mind already made up as to what kind of a specialist he is going to become. This has a tendency to give that man the idea that he is a little superior to the general practitioner. I have always claimed that the greatest type of physician is the general practitioner, and I think that is the idea all specialists should have. We should educate people to first consult their family physician. I think it is a great mistake for patients to consult various specialists before they actually know what is the matter with them. If they would go to their own family physician who can examine them carefully and give all the history to the specialist, I think they would be much better off.

I was under the impression it was the law in Kentucky that silver nitrate solution should be instilled into the eyes of every newborn child. This should be the law. I am informed, however, that it is merely the ruling of the state board of health. The amount of blindness from ophthalmia neonatorum due to gonorrhea is appalling, and when we realize that by this very easy method blindness can be absolutely prevented, it seems to me a law should be enacted covering the matter, so that every child might

come into the world free from blindness.

Many times I have had patients ask me if there was any danger to the child from an old gonorrhea. They had the idea that gonorrhea, like syphilis, might act through the blood and affect the child in some way. There is only one way gonorrhea can infect the newborn and that is by passing through the birth canal, the mother having gonorrhea at the time. However, this rarely occurs in this state now, because of the ruling which requires the physician to take care of the eyes of the newborn.

**B. F. Zimmerman:** I have enjoyed the symposium very much. I think Dr. Keifer's paper is especially important, and I would like to discuss it briefly. The specialist should always have proper consideration for the general practitioner, and when a patient is referred to the specialist the diagnosis should be made if possible, but great care should be exercised in making any statement to patient or family as the patient is apt to conceive the idea that the specialist is a "big man" and lose confidence in his family physician. The specialist should not consider, when a patient is referred to him, that the individual is his patient. A careful consultation should be held with the physician who refers the patient, because he understands many angles of that particular case of which the specialist knows nothing. I can illustrate this by relating an incident that occurred in one of the smaller towns of the state. There was a gentleman in the town, call him Mr. Jones, who was not an educated man, but he had been very successful in a financial way. His success gave him the idea that he should occupy a higher position in life than he had been accustomed to, and he began to use every new word he heard whether rightly or wrongly. You have all seen individuals of that type. There were two physicians in the town whom we will designate as Dr. A and Dr. B. Mr. Jones was talking with a friend whose wife was shortly to give birth to a child, and asked if a physician had been engaged for the delivery. His friend said yes, that they were going to have Dr. A. Mr. Jones, "Why don't you have Dr. B, he is the best doctor in town?" The friend replied, "Yes, I know he is a good doctor, we have had him in our family and have confidence in him, but you know Dr. A is my life's uncle." Mr. Jones remarked that he had forgotten about that, and added: "There is no better man in he South on wifery than Dr. A, and I am sure there is no better man on adultery than Dr. B!" The general practitioner knows many angles about his patients that are unknown to the specialist, and anyway courtesy demands that he should have the opportunity of free consultation with the specialist. General practitioners have complained of having referred patients to the specialist, and after careful examination the latter decide the heart, we will

say, should be examined before completing the diagnosis, and had sent the patients to a cardiologist without consulting the man who referred the case to him. I do not believe the specialist deliberately wants to override the general practitioner, but in his anxiety to complete the diagnosis he sometimes sends the patient to another physician without consulting the man who referred the case to him.

There is another thing about which we should be careful, that is this: suppose a patient is referred to you with a letter from the physician or he telephones you what he thinks the trouble is. It may be something which has existed a long time and he has tried various remedies. We all know how easy it is to make mistakes. We know how we can get our mind centered on a certain condition, and it is almost impossible to get away from it, until we call a consultant whose mind is free from any preconceived ideas and calls attention to something we have overlooked because our mind was fixed on some other condition. That is true of specialists as well as general practitioners. Suppose you determine after an examination that the condition is not what the general practitioner supposed it was? I do not believe it is right to tell the patient what the condition really is; that is a rather dangerous matter. But we can say to the patient that we will have to talk to Dr. X, you have been under his care a long time, he knows your history and condition much more thoroughly than we can obtain it by one examination; then after conferring on the subject we will give you an opinion; it may be necessary after our conference to have some further examinations made, perhaps x-ray pictures, etc. In this way an x-ray diagnosis can be made if necessary, and the patient does not say "why did not my doctor have that done in the beginning?" The patient gets the impression that the general practitioner has done the right thing. The fact of the matter is, the specialist oftentimes does not know, until he confers with the general practitioner, what the real condition is.

**J. Kenneth Hutcherson:** I wish to say a few words from the standpoint of the general practitioner. I believe the importance of a closer cooperation between the specialist and the general practitioner should be emphasized. We younger men do not want to make a mistake, we want to be ethical; but sometimes we make an error ethically speaking. I have seen instances of that in calling specialists to see my patients. In one instance I telephoned a specialist, a very good friend of mine, and sent the patient to him. Without conferring with me, he treated that patient for a few days, then sent her home asking her to return later for further injections. When I heard of this I could not help but feel that I had been unfairly treated, and concluded to interview the specialist and ask for an explana-

tion. When asked about the matter, he said: "Doctor, it never occurred to me that I was doing anything wrong; I see your viewpoint, and am very glad you came to see me."

I believe with a closer cooperation between the specialist and the general practitioner many of the petty jealousies in the profession that now exist could be eliminated. I endorse what Dr. Richey has said about the specialist making a report to the general practitioner. It may be that some of these men do not have time to make a complete written report, but they can give the general practitioner the diagnosis with a brief statement of their findings. This is what the general practitioner wants for file in his records.

My work has been confined to general lines, which includes some obstetrical cases. I have not performed any major surgical operations as I know my limitations. In a city like Louisville, where there are men doing all kinds of special work, it would be a crime for me to attempt something for which I am not properly equipped. In a city like this the general practitioner and the specialist could be of great value to each other if they would co-operate and many of the jealousies that now exist could be eliminated.

**Simrail Anderson:** What is it that influences certain general practitioners to select certain surgeons and refer all their surgical cases to them? Some even use every intrigue to keep from calling the surgeon chosen by the family. One reason why I ask this question is that some time ago a patient came to me for an abdominal section, which I performed. The woman went home and paid her bill promptly. Later I received a letter from the physician who accompanied the patient here from the country asking if she had paid her bill, stating that he had heard nothing from me. He further stated that Doctor So and So, naming a prominent Louisville surgeon, had been doing his surgical work, and when that patient paid the bill he had always received his pro rata. Does that have any thing to do with referring patients for surgery, or does the practitioner think that particular surgeon more competent, or is it purely a monetary consideration? It looks a little suspicious that there might possibly exist such a thing as fee-splitting.

**Joseph C. Ray:** When the young man starts in the practice of medicine, he has many ideas and ideals which he has been taught. He has been taught to take a careful history and physical examination, but only to use the part of the history that agrees with his physical findings.

It is amusing and at times pathetic to hear one physician make uncomplimentary remarks about another physician in the presence of the patient. These remarks are prompted by the patient's story. They cause these patients to lower their ideas concerning our noble profession. If



these remarks are made through carelessness, then someone should call this to their attention.

The general practitioner knows the physical and financial condition of his patients when he refers them to men doing special work, therefore he should be consulted.

When we have men doing special work on every part of the body, and the city hospital taking a percentage of the work in all branches of medicine, what is left for the general practitioner?

I heard a man doing general work say that he had delivered only one baby in the past six months. His reason for so little work was that the specialists were getting all of it. I asked him if he knew that the city hospital did more than 20 per cent of the obstetrical work that was done in the city of Louisville. This is not only true in this department, but it is the only clinic that I have the figures to present.

May we have charity where it belongs, and compensation where it belongs.

Medical charity should not be card-catalogued or advertised as it is today; it hurts more than it helps; it degrades the recipients and drugs their self-respect.

A large number of our population are coddled into a state of expectant, child-like helplessness and idleness. The social service in hospitals contributes nothing whatever to the self-reliance of the people. They encourage childish wistfulness, instead of training for self-reliance and self-sufficiency. The object of charity and social service does not aim to make itself unnecessary. It is daily building up a large organization that is an added item to non-production.

**Wm. T. McConnell:** I am glad there has been such a free discussion tonight on the relationship of the general practitioner to the specialist. Any man who has engaged in the general practice of medicine for as much as ten years before he limits his work, is almost certain to be successful in his special line, because he will thoroughly appreciate the various viewpoints and rights of others. That is one great advantage of doing so much general work before limiting one's practice to a special line.

In regard to specialists: Every man who limits his work is not necessarily a specialist. I limit my practice to obstetrics because I like that line of work and think I know more about it than other lines.

I think the man who does general practice has the hardest job in the medical profession. The man who limits his practice to one line has a much easier time than the one who assumes such a wide field of responsibility in his work, and the man who does that well is the hero of medicine to my mind.

Dr. Lutz hit the nail on the head in regard to obstetrics from the general practitioner's stand-

point when he said the physician who accepted an obstetrical case should be prepared to give the patient proper care. There is no reason why the general practitioner cannot give his patient the necessary prenatal and obstetrical care. If more physicians would assume the attitude Dr. Lutz has exhibited, there would be less need for obstetrical specialists. At the same time he is not averse to asking for help when he needs it, but the type of man he represents seldom requires assistance. The general practitioner is the one who assumes the great burden of responsibility in his cases. The specialist, so-called, assumes a small percentage of it. The man who cares for the patient before and after delivery deserves every consideration and honor in this work. The principal reason the program committee wanted to have this general practitioner's symposium, we desired to hear the general practitioner's views and give him a chance to present his case.

As Dr. Palmer has said, we hear so many papers read by specialists that it is certainly refreshing to listen to a program of this type and the discussion by general practitioners giving their viewpoints on these important questions.

**W. F. Stucky:** Unfortunately I did not arrive until the last paper in the symposium was being read, but I would like to speak concerning some of the points raised in the discussion. As to Dr. Anderson's question, why certain specialists are always called by certain general practitioners: I do not believe any real specialist, a man who is entitled to be known by that appellation, is guilty of fee-splitting. I do not know what has been the custom of other practitioners, but personally when I have a patient I think should be referred to a specialist, I have always made it a rule to ask that patient or the family if they have any preference, if not I then tell them who I think would be a good man. I select a specialist with whom I have previously been associated, one in whom I have confidence and I know does good work. That has been my way, and I imagine it is the way of most general practitioners.

As regards the reporting contagious diseases: I believe we should report every case regardless of who the people are, treating one party just like another. I recall that several years ago two of my medical friends in Louisville were taking a Sunday afternoon ride and stopped at my house to see me. As they drove in they saw a sign on the door. It so happened that two of my children had measles at the time. They asked what in the world it meant, to which I replied it meant we had measles in the house and I had reported the cases just as I would if the disease developed in any other family. I think we should report every case of contagious disease that comes to our notice, treating one person the same as another.

As has been emphasized here tonight, there

should be no antagonism between the specialist and the general practitioner, they should co-operate and work together. I believe as a general thing they do, that has always been my experience. I have never had trouble with any specialist I have had in consultation. There is one thing the specialist should do to secure a better feeling and better co-operation with some of the general practitioners, especially those who have complained, and that is when something in a medical line arises, for example, after an operation, the specialist should call in the general practitioner who referred the case so they can examine the patient jointly. For instance, if postoperative pneumonia occurs, or some cardiac lesion develops, instead of the specialist treating the patient if he would allow the general practitioner to consult with him and treat the case along with him, there would be a better feeling and better understanding between them.

**Wm. E. Gardner:** Dr. Frankel and other members of the program committee need make no apology to the society for the program which they arranged for this meeting. All the papers presented have been most interesting and instructive.

Those of us who limit our work to a special line do not fully realize how much help we get from the general practitioner in broadening our views. I think there is great danger of certain specialists becoming so narrow in their views that they do not properly evaluate the many factors that enter into the symptom-complex of some of their important cases. In many instances I have been called in consultation where I was rather inclined to think the patient was suffering only from the effects of emotional conflict, disappointment, or undue anxiety and have had the general practitioner call my attention to some recent illness, infections, disease, nephritis, or some other physical condition that played an important part perhaps in influencing the outlook in that particular case. I am indebted to the general practitioners very much for the scientific help I have received from them. It is not the man who limits his work who knows all the different angles that must be considered in any given case.

All the papers have been interesting and sufficiently scientific to answer the requirements of this society. Like Dr. Palmer, I am a regular attendant of the society and always hear something of interest. I do not regard the time as lost in coming here regularly.

**Emmet F. Horine:** As stated by previous speakers there should be no conflict between the general practitioner and the man doing special or consulting work. The objective of each should be the welfare of the patient. An important thing which should always be borne in mind is that the Golden Rule must be followed.

I believe I can discuss the subject from both

angles having been a general practitioner for many years prior to taking up my present special work. From the general practitioner's standpoint I would say to the specialist that the general practitioner wants his help. A consultant is called because real assistance is desired, even criticism if necessary, and above all constructive advice is appreciated. In addition the interests of the general practitioner should be kept in mind. The consultant must do as he would desire others would do to him.

As a general practitioner I was anxious to secure consultation particularly when the gravity of the situation demanded it and when the family was disturbed. This willingness to seek consultation always seemed to create a more trustful attitude on the part of the family. With the thoughtful, competent and conscientious consultant present I was not only aided scientifically but found my relationship strengthened both with the patient and family.

When it comes to the consultant, certainly he should in every possible way attempt to aid the general practitioner. Particularly should he, neither by word nor deed, do anything which might provoke distrust of the general practitioner. This is especially important. A single word may sometimes cause distrust and if distrust is ever created in the mind of the family, then not only will that family distrust the physician himself, but likewise the consultant. Such a situation can only give medicine a "black eye." Be careful what is said before the patient and the family and always, if possible, have the general practitioner present. May I further suggest that the attitude of the general practitioner should be cooperative. Occasionally the practitioner assumes an obstructive attitude which is not only detrimental to him but to the best interest of the others concerned.

Dr. Kiefer mentioned some very important points. I think he is very kind to the consultant, much kinder than a man I heard speak several months ago. This critic said he never wanted consultants because they charged the patient too much and that when his patients "ran off to a specialist" he always prayed they would be charged exorbitantly. The question of fees is a most difficult one to settle. It should be remembered that one doing special work, who has equipment that may be very expensive, to say nothing about interest on his investment, must charge more than the general practitioner. If the specialist charges the same fee as the physician, then he would be in direct competition with the general practitioner. This would work a hardship on the general practitioner in the event the patient wanted the specialist again. For these reasons I think the man who does special work must charge more.

**E. E. Butler** (in closing): I am sorry that the program committee did not assign to me one



of the other titles of the symposium, as there was little to be said regarding contagious diseases from the viewpoint of the general practitioner. Had I been assigned the title, "problems of the general practitioner," I could speak for a long time as the problems of the general practitioner are many and it seems to me they are constantly becoming more numerous. I have become familiar with most of these problems during the practice of medicine for over twelve years. I do not see how the young man starting today as a general practitioner in this city, with the competition of the Louisville City Hospital, the Children's Free Hospital, the prenatal clinic, Workmen's Compensation act and other local charity agencies, can make a comfortable living. These agencies do not affect the older men so much because we have past the stage where we have to depend for practice on semi-charity patients; but the younger man just starting in practice is greatly handicapped as he has to depend at the start on the poorer classes for patients. He rarely gets a confinement case as these patients are all going to the City Hospital. If time permitted I could cite many instances where this has been done thus taking practice away from the general practitioner. Unless the general practitioner of today is competent to do many things that he is not usually expected to do, he is not going to make very much progress. He cannot collect enough money to support his family properly by simply making residence calls. If all of you who have charge of the affairs of the local charity agencies will keep these things in mind we may eventually bring about some improvement in existing conditions, if not it is a possibility that in time there will be no general practitioners.

**Frank J. Kiefer** (in closing): I appreciate the liberal discussion on my paper. Dr. Anderson asked why general practitioners in outlying districts referred all patients requiring special treatment to one certain surgeon or specialist. While this is a difficult problem to solve, I think Dr. Anderson suggested the correct answer in his closing remark.

My association with specialists has always been pleasant, and in many instances they have been of great assistance to me in trying to solve obscure problems. There should be no conflict between the general practitioner and the specialist; they should work hand in hand, in the interest of the patient, to secure the best results. I believe that is the plan followed in the majority of cases.

I am in accord with what has been said about reporting contagious diseases, and placarding houses in which such maladies exist, regardless of the status of the people. We should do everything possible to prevent spread of disease, or confine it within the narrowest limits.

I was particularly interested in Dr. Morris'

paper on obstetrics. When pituitrin is administered as he described there is no danger to mother and child. However, like other powerful drugs, if given in large doses and too early in labor, pituitrin is not without danger. I have seen no bad effects from pituitrin administered in small doses after complete cervical dilatation, it is surprising what one minimum dosage will perform.

## LOW BACK PAIN\*

ORVILLE R. MILLER, M. D.

Louisville.

Pain in the lower lumbar and the sacral region is of such common occurrence that almost every man in the active practice of medicine is being constantly called upon for relief of such condition. Because of the fact that pain in the lower spine frequently is noted in association with almost every pathological condition found in the body, from the level of the umbilicus to the soles of the feet, the author presents this subject with enumeration of some of the causes found common in his own experience, hoping to provoke a full and free discussion of this symptom, which is not symptomatic.

What in the world is the matter with the patient who comes hobbling into the office on a crutch and a cane and says, "My back hurts?" One may well take off his coat and open his collar, preparing himself for as thorough and complete examination as he is capable of making, bearing in mind all the while the possibility of consultation with one or more disciples of every known specialty. What in the world is the matter? Is it the flu or typhoid fever? Is there actually some local affection? Is it the way he stands or walks? Is it referred or is it an hysterical manifestation that awaits the application of the magic "green-back poultice?"

In the account of some of the most common causes of this condition it is found that injury takes first place, in the experience of the writer. The patient states that on a definite date that a definite injury was sustained, such as a fall, a blow, or a wrench or strain and that following this he has had pain in or near the lumbo-sacral or sacro-iliac joints. The lumbo-sacral joint is constructed more loosely than other joints in the lumbar spine. There is a tilting forward of about thirty degrees of the upper surface of the first segment of the sacrum so that there is more separation between the fifth lumbar vertebra and sacrum, the intervertebral disc is thicker than in other portions of the spine; the ligaments, while necessarily strong and large, are

\*Read before the Jefferson County Medical Society.

longer and allow a wide range of motion. There is an unusual excursion of the fifth lumbar at the time of extreme flexion or hyper-extension of the spine, and were it not for the extraordinary arrangement of its articular facets the lumbo-sacral joint would be weak and unstable. While the reverse is true, the joint is nevertheless subject to frequent injury. Strains or sprains in this locality usually come about from a fall, the patient's body being thrown forward in a position of extreme flexion of the spine. Because of great pain and weakness the patient is usually immediately disabled.

The sacro-iliac joints are diarthrodial in nature and are freely movable in both sexes until the age of puberty. In the female this condition continues well into advanced life normally. The facet of the ilium is rounded and of a condyloid appearance, while that of the sacrum presents a corresponding smooth depression, permitting motion comparable to that at the wrist. In the male a large part of the motion is lost after puberty. This is caused perhaps by the greater amount of strain and injury sustained. The articulating surfaces are pitted and roughened by projections. In the male the joint is also more closely knit by strong ligaments and the size and shape of the sacrum differs from that of the female so that in the production of injury much greater force is required. Strains or sprains usually take place during great muscular exertion in an effort to lift or push some heavy object, or by wrench received at the end of a swing of a golf club at the time of a long drive. Some of the ligamentous structures of the joint are stretched or torn by the tremendous tension placed upon them, allowing abnormal motion or laxity in the joint with subsequent weakness and pain. The patient frequently states that during the great stress of his effort he felt "something give way" or "something tear." While pain is instantaneous usually, it is not invariably so. Discomfort is practically always present from the first, but time may elapse before severe pain is experienced.

A great amount of relaxation takes place among the ligaments of the sacro-iliac and lumbo-sacral joints during the latter months of pregnancy. Great injury may be done these joint structures during natural delivery if the head of the child is abnormally large in relation to the pelvic canal.

Fractures of the transverse processes or of some other portion of the lower lumbar or sacral vertebra or of the ilium extending into the sacro-iliac joint are usually caused by direct violence. These patients give histories of having been jammed in collision or overturning of an automobile or train wreck or

by falling slate in a mine, etc.

Next in frequency and importance is arthritis of the lumbo-sacral or sacro-iliac joints. Such a condition frequently follows in the wake of injury. Before the parts have returned to normal completely there is an open door, a paved pathway and a pressing invitation to these alluring fields that any prodigal microbe would be foolish to ignore.

Robert Osgood, in an essay on "The Frequent Association of Intestinal Stasis with Spinal and Sacro-Iliac Arthritis" published in the Robert Jones Birthday Volume, presents evidence gathered from his own experience and that of others, would indicate that a very great percentage, if not a vast majority, of cases of arthritis of the lower spine is of intestinal origin. This is not necessarily characterized by symptoms indicative of an active inflammatory process in the intestine nor by constipation. Very often the history reveals that defecation occurs daily without the use of a drug, and still a barium enema shows a residue in the cecum as much as seventy-two hours old.

Straining or even using the part too soon after injury is a predisposing cause of development of arthritis by aggravating the inflammatory process. Failure to provide proper treatment of injuries in this region is often the explanation of the development of arthritis.

Suppurative arthritis of the sacro-iliac joint is occasionally met. Usually this is a complication or one of the sequelae of osteomyelitis in some other portion of the body. Tuberculous arthritis is also usually secondary to an infection elsewhere.

A very common cause of pain is chronic strain of the lumbo-sacral joint as a result of postural defects or deformity which tend to increase the lumbar lordosis. Among such defects or deformities are found bilateral congenital dislocation of the hip and the coxa vara. Because the center of gravity, in this type of case, is misplaced, the patient presents a sway-backed appearance. Cases of spondylolisthesis, pendulous abdomen and congenital hyperlordosis come under this general classification.

Scoliosis, either congenital or acquired, flat foot, or the wearing of high-heels or other abominable styles of shoes may, by throwing constant, unnatural strain on the lower spine, cause considerable pain in the region of the lumbo-sacral joint.

It is a very common thing to find pain in the back due to menstrual disturbances, malposition of the uterus, disorders of the prostate, lesions of the colon and anal canal. Often when there is intestinal stasis there may be considerable pain in the back. In the ab-



sence of symptoms and physical signs characteristic of local changes this may logically be considered referred pain. A patient with generalized osteomyelitis who has recently been under the author's care, experienced intense pain in the lower lumbar region for two or three days during the passage of a renal calculus.

Defective developments, while not so frequently seen as a cause for this condition as those already mentioned, are nevertheless sometimes responsible for a considerable amount of pain. The fifth lumbar vertebra varies in different individuals to such an extent that it cannot be appraised as to the relation of its size and shape to a definite standard except for broad general outlines. Thus bilateral or unilateral sacralization of the fifth lumbar, spina bifida and unusually long transverse processes are numbered among the anomalies.

There still remains some difference of opinion as to whether sacralization causes any symptoms of itself. Some authors consider that there is always some reason to be found for pain in these cases other than a mere synostosis between the vertebra and the first segment of the sacrum. But the local weakness which is concomitant with spina bifida is an acceptable reason for painful disability. Abnormally long transverse processes may interfere with a free range of motion in this region. And because of abnormal strain on the lumbo-sacral ligaments and repeated impingement on the soft structures between the process and the wing of the ilium or on the periosteum of the ilium itself may give rise to a low grade inflammatory process which is painful.

Sciatic neuritis and spina bifida occulta are among the neurogenic causes. Sciatica induces the patient to splint the affected side by holding the muscles in a sort of tonic spasm, thereby causing pain from fatigue. In spina bifida occulta some of the nerve roots have been found bound down or attached to the surrounding structures by such strong fibrous adhesions as to cause pain and at the same time certain trophic disturbances in the lower extremity.

During pregnancy patients frequently complain of pain in the lower spine which is of a radiating character often reaching well downward into the calf muscles on each side. This is in all probability due to a neuritis caused by the pressure of the enlarged uterus on the nerve trunks of the sacral plexus, as they course downward on the anterior aspect of the sacrum, and due to a stretching of the softened ligaments of the lumbo-sacral region. Strength is lent to this belief by the fact that when no anesthetic is used during delivery,

the patient complains loudly of pain in the back during the passage of the child's head through the birth canal.

Rheumatic involvement, such as myositis and fibrositis, of the muscles and their attachments, cause considerable pain and sensitiveness to pressure. Thrombo-phlebitis or infarct in muscular portions of this region, during a mild attack of influenza may cause a sudden stabbing pain which frequently persists for several days or a few weeks.

And lastly, and all too frequently, the most troublesome type is the hysterical spine. The author is firmly convinced that some truly pathological conditions have been classed as hysterical and the patient therefore done a great injustice. Especially is this true when the patient is a more or less nervous individual normally. His great exaggeration of symptoms and indefinite statements as to time and place of pain may cause the examiner to become biased in his opinion of the amount of disability present. These statements are occasioned by the experience repeatedly of having operated upon with subsequent relief of patients in the past who had been considered neurasthenic or hysterical. These have been accident cases in which the patient had been paid in full settlement and who had not found relief from pain through the wearing of some type of harness or brace. All these patients came into the office wearing apparatus that served no purpose other than to excite interest and speculation on the ingenuity of the designer in contriving anything so complicated and so cumbersome.

It is the steadfast belief of the author that neurasthenic or hysterical spine does exist as an entity, but that it is the least frequent among the causes for complaint of pain and disability.

Rest, elimination of the underlying cause, fixation and physiotherapy are principles of importance in the treatment of low back pain. Rest in the recumbent position should be prescribed for acute injuries until all pain and practically all sensitiveness has disappeared. Following this the patient should be supplied with some simple appliance such as a Goldthwaite low back brace or a sacro-iliac belt, depending upon the requirement of the particular case. At this time physiotherapy, such as massage, etc., is instituted and the patient allowed to walk about.

In acute suppurative arthritis of the sacro-iliac joint, free drainage should be obtained by removal of a portion of the ilium, establishing direct communication between the joint and the outside world. Considerable weakness of the joint results immediately following this operation, so that walking should not be allowed for a considerable time after-

ward. It is doubtful in cases of chronic arthritis in this region, whether some patients ever reach the place where there is complete cessation of pain or a certain riddance of the danger of further activity of the process without the production of fixation by surgical means. This is usually accomplished successfully by the Albee operation on the spine or the Smith-Petersen on the sacro-iliac joint, or a combination of the two where indicated.

Removal or amelioration of postural defects and removal of any condition causing referred pain should, of course, be done at once. The application of an abdominal support which has the combined feature of splinting or bracing the sacro-iliac joint, affords considerable relief in cases of pain associated with pregnancy. Spina bifida should be repaired. The adhesions found among the nerve roots should be removed in spina bifida occulta. Rheumatic affections should receive rest plus antirheumatic medication and physiotherapy, and in practically all cases physiotherapy when used at the proper time as an adjunct and in the hands of one specially trained, will be found to be a source of great comfort to the patient.

#### DISCUSSION

**Harry Goldberg:** There is very little to add to what Dr. Miller has mentioned in his interesting essay on low back pain, except to emphasize a few points. From a diagnostic point of view, the differentiation between symptomatic and idiopathic low back pain of mechanical origin is the important point. The greatest difficulty in differentiation is offered by the presence of arthritic changes in the spine. It is well to bear in mind that the characteristic of referred pain is that it is not dependent upon motion or posture of the body, as is local or idiopathic low back pain.

The analysis of the local pain itself, and the allocation of its origin to the different parts of the lower back, is comparatively easy, due to the typical features of a sprain, which rests upon four cardinal principles: (1) there is a definite and circumscribed area of tenderness to pressure, (2) there is spontaneous pain in the joint on motion in the direction in which the sprain was primarily produced, which produces a position of aggravation, (3) when such position or attitude is reversed, that is if the positions are assumed opposite to those in which the sprain was primarily produced, a relief of the painful symptom ensues, which is called the position of relief, and (4) as acute sprain will yield to immobilization of the joint in such a position as will relax the sprained ligaments.

Certain qualifications, however, must be made for sprains originating in the back. The point of tenderness to pressure loses its distinctness as the sprain passes from an acute to a chronic

stage. The sprain-relieving position, which is converse to the one in which the sprain was primarily produced, may change as the acute tenderness subsides and other painful complications of the spine come into the foreground. The fact that low back sprain is often not relieved by immobilizing measures does not disprove the assertion that these sprains respond to rest. The fault lies in the methods of immobilization, which are usually incomplete and inefficient.

The correct diagnosis of a particular sprained structure of the lower back should be arrived at from a systematically conducted examination with the patient standing, sitting and reclining.

Sciatica, one of the common complications found in association with low back pain, is most frequently secondary to local disorders in the lumbar and sacral regions. In a series of 375 cases of low back pain at Steindler's Clinic, radiation along the sciatic nerve was found in 67 per cent of sacroiliac sprains; in 28 per cent of sacrolumbar sprains; and in 42 per cent of combined sacroiliac and sacrolumbar sprains.

These secondary sciatic symptoms yield to immobilization in a large measure; to immobilization and stretching in a majority of cases.

Errors commonly made in the treatment are of two kinds: (1) measures are trusted for immobilization which are obviously insufficient; belts are applied where braces and casts are needed, or braces and casts are applied when recumbency is necessary, (2) weight-bearing is often allowed too soon, especially is this noticed during the transition period from the recumbent to the ambulatory stage, when crutches should be used.

It is only by the application of recognized principles in the field of mechanical derangements of the lower back, can one expect to obtain gratifying results.

**Paul A. Turner:** It may seem strange that a tuberculosis specialist should discuss orthopedic surgery, but I take this opportunity to talk about it for one reason only, namely: because I happen to have been a victim of sacroiliac slip myself. Not many years ago orthopedic surgeons and physicians generally did not believe the sacroiliac joint could slip or get out of place. We now know that idea was erroneous.

During the World War two troops of cavalry were in such a state that in training, many of them were off duty on account of pain in the back. One of the officers in making a tour of inspection, saw a man throwing the soldiers about in a tent. He immediately asked what they were doing, and the sergeant replied they were reducing separated sacroiliac joints. The doctor in attendance knew nothing about the matter and began to investigate, and finally the



sergeant said he was an osteopath. The osteopath did not understand the anatomy of the joint, but he told the lieutenant how to reduce sacroiliac separation. In a short time all the members of this troop were on duty. The other troop, where the treatment was not used, still had many men off duty.

After returning to this country the surgeon reported these cases before a state medical organization in the west and also before his local society, and practically everyone doubted that the sacroiliac joint could slip. Later it was thoroughly understood and recognized that the sacroiliac joint could be displaced and that it could be reduced. If not reduced under the proper manipulations, very little benefit can be accomplished by immobilization alone. From personal experience I know the joint may slip especially in a loose-jointed individual like myself, which will bring about a difference in measurement of the legs, one being perhaps an inch longer than the other. When reduced by proper manipulation, followed by immobilization, perfect results are secured.

**David C. Elliott:** I am very glad Dr. Zimmerman mentioned epidural injection for the relief of sciatic pain. Many patients with sciatica have low back pain that cannot be definitely attributed to any actual pathology or evidence of deformity in that particular area. The prognosis in most of these cases is favorable. The patients obtain immediate and permanent relief from epidural injection through the sacral hiatus. It is not necessary to have any special solution. The use of ordinary saline solution will produce the effect desired. If 30 to 35 c. c. of the solution be injected into the sacral canal relief from pain is almost instantaneous. In some cases the second or third injection is sometimes required. Complete recoveries or cures by this method have been reported as high as 75 to 80 per cent.

Another point about pain in the back I want to mention is in connection with spinal anesthesia. We are using more spinal anesthesia now than ever before, and after operation the slightest pain in the back is attributed by the patient to the spinal puncture; but very frequently it is found that the lesion causing pain was present prior to operation. Pain in the back after spinal anesthesia is probably due to extreme relaxation of the ligamentous structures. By proper posture on the table with a small flat pillow under the back much of this tension can be relieved. Pain may reappear as soon as the patient is replaced in bed. Many of these postoperative pains can be relieved by simple measures.

**John J. Moren:** The question frequently arises as to the differential diagnosis between sciatic pain, from sacroiliac strain, and true sciatic neuritis. My experience has been that

in sacroiliac strain we are dealing with neuralgia of the sciatic nerve and not a true neuritis. Again, the pain is always about the hip above the knee rather than below the knee. Another thing, in sacroiliac strain the tendo achilles and planter reflexes are not disturbed; whereas in ordinary sciatic neuritis pain is principally below the knee and the tendo achilles and planter reflexes are frequently altered or lowered.

**Walter I. Hume:** I have been interested in one particular phase of this subject, namely: back pain caused by pelvic pathology. I have been watching the literature on this point for quite a long time. Cabot in his *Differential Diagnosis*, makes the statement that pelvic pathology and low back pain are mutually independent. He cites Dr. C. T. Dercum's tables to support his contention.

Undoubtedly all types of pelvic pathology exist with and without back pain. I wonder what the experience of the members present has been in regard to this point. My own observations have quite regularly supported Dr. Cabot's views. Quite often some minor pathology is found in the pelvis, and if back pain is present, we are prone to attribute it to this minor pathology. We all know the many symptoms which may be produced by disease in the pelvis. Yet I have been surprised to note, in a large number of cases of major pelvic disease, that many have complained very little of back pain. I might add that often this same relation or rather non relation, of serious renal disease and back pain may be observed.

**Granville S. Hanes:** I wish to state that Dr. Hume might convey the information to Dr. Cabot that people in and about Kentucky do have low back pain that is related directly to pelvic pathology. His statement is conclusive proof that he has not had similar experiences to those of others who have also had frequent occasion to deal with low back pain.

I have relieved and cured many patients during the past ten years who had low backache, sciatica, etc. by the injection of castor oil, dilute hydrochloric acid and other agents in diseased pelvic tissues. These patients can be put on exhibition if doubt is entertained.

**James R. Stites:** We have treated a large number of cases of prostatitis by means of diathermy. The outstanding symptom in all cases of prostatitis is pain. In our experience the site of pain in more than 50 per cent of cases is low in the back.

In making the diagnosis of low back pain the prostate should always be examined, but do not take one examination as conclusive. We cannot get an accurate idea of the amount of pus in the prostate until after massage has been practiced several times under stimulation with heat in the rectum by diathermy or otherwise.

**Edward R. Palmer:** I agree with Dr. Hanes

that pathology in the pelvic region can give rise to very decided back pain, particularly uterine pathology in the female and prostatic pathology in the male. I have been led to the conclusion, however, that this pain is not directly due to the pathological organs in themselves, but these organs are foci of infection. We are just as likely to get back pain from an infected tooth as from disease of the prostate or uterus. We are dealing here with a focus of infection, and pain is due to the absorption of toxins and bacteria carried to a locus minoris resistentiae, that is the lower lumbar region, the region that is most movable of any part of the spine except the neck, and is therefore subject to much stress and strain. It has been my observation that low back pain is most frequent in men of the industrial class, railroad engineers, etc., in whom prostatitis is common. If we find no foci of infection in our particular line of work, the patient should be referred to someone else where he can be examined for other possible foci.

I do not believe back pain from prostatitis or from endocervicitis is due to the organ itself directly, but to the fact that this organ is a focus of infection, and from this focus toxins and bacteria are being absorbed and carried to the lumbar region.

**Orville R. Miller**, (in closing): I am sorry if the impression was created that my paper was intended purely as an orthopedic contribution. A large number of patients with low back pain apply to the orthopedist for treatment. On the other hand, quite a number of them do not require the attention of the orthopedist. We are often asked for information as regards the etiology of low back pain. Some of these patients have been carefully examined and no focus of infection found anywhere in the body. It is well known that many diseases may give rise to low back pain. I think from a diagnostic point of view we may settle the question on a fairly reasonable basis. If several roentgenograms of the back have been made and all are negative, if there is no history of injury immediately preceding the onset of pain, if there are no points sensitive to pressure about the lumbo-sacral or sacroiliac joint, if motion of the spine is free, if the patient can ascend and descend steps without pain in the back or radiating downward along the thigh from the sacroiliac joint on one side or the other, if compression of the pelvis causes no pain, we can be certain that the patient has no lesion of the lumbo-sacral or sacroiliac joint.

Sciatica causes typical pain, as has been described, radiating downward over the sciatic nerve. A focus of infection anywhere in the body may cause considerable pain over the sciatic nerve. If the orthopedist discovers nothing to account for the low back pain, the

patient should be referred to a competent internist, general surgeon, or someone capable of making a complete examination of the entire body.

I thank the gentlemen for their generous discussion of my paper. I think the discussion is of greater importance than the paper as presented.

## TUBERCULOSIS CONTROL AND THE GENERAL PRACTITIONER\*

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The present period of economic stress portends an increase in the tuberculosis morbidity and mortality of this country within the next several years. Tuberculous infection is still, unfortunately, ubiquitous; it is practically universal in urban life, and is present in about seventy per cent of city children at the age of fourteen years.

Inadequate and improper food, mental depression and poor housing are the chief factors in phthisio-genesis. The lessons of the World War are still only too fresh in our memories. We can not allow ourselves to forget the marked increase in tuberculosis, particularly within the Central Powers of Europe, where in a space of five years the disease doubled, trebled and quadrupled in various communities, incidental to war privations. We have learned since, in our research, that changes in the body chemistry, brought about by inadequate and improperly balanced food rations, are an important factor in lowering the resistance of the human host to this disease. The individual with such a lowered resistance becomes an easy victim to the enemy within his gates.

A condition similar to the World War confronts us in the present economic crisis. If the present situation prevails for a period of months or longer, we will again surely see an increase in the incidence of tuberculosis. The control of tuberculosis, therefore, becomes, at this time, a subject of the utmost importance.

The relegation of tuberculosis from its position twenty years ago as Captain of the men of Death, to its present position of sixth place in the mortality tabulations is a remarkable public health achievement. Much

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of the credit must go to the organizations especially developed to combat and control this disease.

In the City of Chicago, tuberculosis control is relegated to a separate public health agency which co-operates with the Department of Health. This tuberculosis organization is known as the Municipal Tuberculosis Sanitarium. It exists by virtue of State legislation, which allows any community within the State, through a referendum vote, to place on its ballot the proposition as to whether they shall assess a special tax to be used in the prevention, diagnosis and treatment of tuberculosis. This enabling legislation creates the funds which are the real sinews of war. It not only takes on the responsibility of furnishing institutional care for tuberculous patients but also the organization of an extensive clinical division in the field and the operation of clinics or dispensaries for the examination and treatment of patients. When it has affiliated with it the rules and regulations for the control of tuberculosis made operative by the State Department of Public Health, in conjunction with ordinances created in the municipality, it also takes on the public health supervision of these patients in their homes, irrespective of whether they have been reported by a private physician, a private clinic or one of our public clinics.

The compulsory reporting of the known or suspected case of tuberculosis is mandatory under the State Law and is the first essential in the control of this disease from the public health standpoint. The State Rules and Regulations also make it mandatory that the physician attending a case of tuberculosis, or consumption, advise the patient and the members of the family and household, as to the nature of the illness and as to the means whereby infection may be avoided, especially as to the isolation of "open cases" of tuberculosis, the proper disposal of sputum, the control of cough, and the avoidance by healthy persons of the use of articles that have been used by the person having tuberculosis. Suspect cases of tuberculosis shall be considered as having active tuberculosis until they have been definitely proved to be non-tuberculous by physical examination and such recognized laboratory methods as are considered essential by the Director of Public Health or his local representative.

The State law further provides that "it shall be the duty of the local health authority, upon receiving a report of a case of pulmonary tuberculosis to visit and inspect, or to cause to be visited and inspected, by a duly authorized and competent agent, at such intervals as are practicable and neces-

sary, the home of the patient to satisfy himself that reasonable precautions are being taken for the protection of the public and of the members of the household."

These functions in our city are relegated to the Municipal Tuberculosis Sanitarium organization.

To determine whether the individual with tuberculosis is a menace to others and to prevent the spread of the disease, the rules and regulations of the State Department of Public Health further provide that the sputum of these patients be examined at definite intervals in a laboratory recognized by the State Department of Health. This laboratory work is also relegated to the Municipal Tuberculosis Sanitarium organization. In the presence of a positive sputum, or where an individual who has had a positive sputum still shows physical findings indicating an active disease process, which ordinarily would be productive of tubercle bacilli, that individual is classified as an open case. The individual so classified receives a special surveillance because of the dangers which may emanate from his sputum. Certain hygienic regulations are prescribed for him as to the disposal of his sputum and other infected excreta, and he is segregated from other members of the family or household where he resides; especially as regards children under the age of sixteen years is this segregation intensively enforced. Because of the fact that children are especially susceptible to tuberculous infection and if allowed to continue in contact with such infection over a prolonged period of time may develop a massive tuberculous disease, this special protection is provided for in the State rules and regulations as follows: "No child under sixteen years of age shall live in the same home, apartment or other place of abode or habitation occupied by a person suffering from active or open pulmonary tuberculosis, unless proper precautions are being observed, and unless there is no contact between the person suffering from active or open tuberculosis and other members of the family."

In the past year, 962 patients with open tuberculosis were separated from over 2,000 children. In addition, under the State rules and regulations, and with the police power invested in the Commissioner of Health, who acts as a member of the Board of Directors of the Municipal Tuberculosis Sanitarium, individuals with tuberculosis who do not adhere to the conditions as provided may, in the enforcement of these rules and regulations, be subjected to the following measures:

(1) **Forcible Hospitalization**—in which the individual may be removed to an insti-

tution for the treatment of his disease, forcibly if necessary, and retained there until such time as home arrangements in compliance with the law are made. Forcible hospitalization in Chicago is not a gesture. It is a fact, and in the isolation of the open case to protect child health, is enforced to the letter. In the year 1929, in only 29 cases was this action found necessary.

(2) The Placard: At times, in order to compel cooperation, where a serious infraction has not occurred, the placard is used.

The placard—a red sign with large black letters—is nailed to the door of the apartment or home of the non-cooperative patient. This placard is maintained for an indefinite period of time; until cooperation is obtained. Usually, cooperation is forthcoming within twenty-four hours after placard is posted.

Concerning the volume of work done by the Chicago municipal tuberculosis sanitarium in the year 1929, there were 244,907 patients' visits to our clinics; there were 366,491 nurses' visits to the homes of patients for supervision and bedside care; 75,483 children, unable to pay for the services of a private dentist, were given 210,484 treatments in the ten dental clinics maintained as an adjunct to the dispensary or field division. Twenty-five school physicians and twenty-five school nurses are maintained by our institution, working in conjunction with the Department of Health physicians and nurses, examining school children in the public school system and weeding out the suspect tuberculous child. Sixty-six open window rooms with an enrollment of 1,980 children and approximately 350 children with bone tuberculosis attending our crippled children's schools are under the medical and nursing supervision of our organization.

I mention all these factors to give you an idea of the vast scope of work of a public health organization that, operating under a State law, becomes a diagnostic and treatment agency in the practice of medicine, in a city like Chicago. The efficient operation of such an organization has resulted in a decrease in the death rate from this disease to the present low figure of 66.1 per 100,000 population, the lowest death rate from tuberculosis in any large city in the world today.

I pause for a moment as it were on a peak to view from the heights the other vista before our eyes. As a public health official in charge of this organization, whose work I have briefly outlined, I receive no financial remuneration. My livelihood comes from the practice of medicine in that same community. As a practitioner of medicine I can visualize what serious inroads organizations of this

type existing today and those which may follow in years to come, may make upon a most important branch of service to humanity—the medical profession. When the responsibility of this organization was given to me, the thoughts which I had harbored for many years concerning public health agencies immediately began to function in a practical way. *Some years ago I formulated the statement, "The general practitioner is the first line of public health defense." The family doctor has easiest access and closest intimacy with the patient. His contact and advisory capacity in the family can never be replaced in building up a health conscience or morale by any agency. The public health official, as guardian of the public health who does not realize this, fails at once in an efficient performance of his duty to the people he serves.*

Let us now consider how cooperation between an intelligently directed public health agency and the practitioner at large can be utilized in promoting improved community health:

(1) Let me reiterate that the factor of prime importance in the control of the disease is the reporting of the case, and in the majority of instances, that report must originate with the private physician, either in his office or in the home of the patient. Unless that report be given to the health agency responsible for the control of the disease, no control can be exercised. To protect the private physician, so that he may maintain supervision of his patient, it becomes necessary, in a treatment organization, that every member of that organization, who enjoys specialistic training through such association, thoroughly understands that he will be summarily dismissed if he proselytes a patient whom he has met through contact because of his service in public health. This rule is absolutely enforced in our organization, and is an assurance to the private practitioner that he has no competition, as regards his personal patient. Upon receipt of report of a case of tuberculosis from a private physician, a letter is immediately sent to him containing a copy of the State Rules and Regulations for the control of tuberculosis. In this letter, the family doctor is asked to inform his patient that a registered graduate nurse employed by the Municipal Tuberculosis Sanitarium will visit the home of the patient as required by law. Although this nurse wears a uniform, she is not a police officer and is there first, to make certain that the rules and regulations for the control of tuberculosis are being observed, and to give information concerning these rules and regulations to the patient and family; secondly, to function as a graduate nurse receiving orders from the private phy-



sician in aiding him to institute a regimen in that home which will be favorable as far as aiding the patient to recovery. No literature or advice is given to the patient who is under the care of a private physician, without his cooperation and at his request.

(2) The Open Case. We have mentioned before the type of supervision operative in the care of open cases. Here especially is the cooperation of the private physician solicited, for in the management of the open case our greatest difficulties are frequently encountered. When the patient's sputum is found to be positive, a letter is immediately sent to the private physician informing him of this fact. If there are children under sixteen years of age in contact with the patient, the attention of the family doctor is again called to the rule concerning separation of children from an open case, and he is asked to make arrangements for such separation within a period of five days. Failure to do so makes necessary the public health prerogative, but the family physician is first given an opportunity to prevent public health intervention.

(3) The Examination of Contacts: Upon receipt of a report of a case of tuberculosis, particularly where the patient is an open case or upon receipt of a certificate of death from tuberculosis, from the Department of Health, we immediately send a letter to the private physician asking his cooperation in securing the examination of all contacts in the family. A follow-up call is also made by the nurse in the district to direct such contacts to their family physician for examination. All contacts are considered as suspect cases of tuberculosis until proved otherwise, and the family physician determines the diagnosis. Subsequent examinations at intervals of six months are also requested.

(4) Examination of Patients in our Dispensaries: Any patient, irrespective of his economic status, is eligible for a physical examination in our dispensaries. It is our aim, however, to weed out patients of good economic status after the first examination and refer them to their private physicians. To date, we have no plan of referring patients to any individual physician. Patients frequently ask for the name of a physician whom we would recommend but at present we do not supply this information. More advanced thought and better cooperation between the medical profession and public health officials should remedy this condition.

A word here concerning non-tuberculous patients. During the year 1929, 40,844 non-tuberculous individuals were examined in our dispensaries. Of this number, 10,135 were adults and 30,709 were children. Patients examined in our dispensaries who are found

not to be suffering from tuberculosis are immediately dismissed, and advised to report to their private physicians. These figures should be sufficient evidence of the immense influence of a large public health organization in referring patients to the place to which they should be referred—the office of the private physician. This role of public health is not sufficiently realized. The medical profession does not appreciate the fact that a public health organization, properly conducted, is the best possible and most effective advertising medium for legitimate medicine. Public health campaigns, scientifically and efficiently managed, should constitute the most effective counterstroke to quack advertising and fad propaganda.

(5) Periodic Examinations: Most tuberculous patients reporting at our dispensaries, particularly if sub-standard, are advised of the necessity of periodic examinations. Periodic physical examination is one of the most impressive features in the preventive medicine campaign, and should be emphasized by all public health workers. Periodic physical examinations are most practical in the office of the family physician, and a campaign for such examinations, sponsored by public health workers, should redound greatly to the benefit of the private practitioner. Such campaigns, in an enlightened public, can only result eventually in improved community health and make unnecessary publicly subsidized medical organizations.

(6) Consultation Service: We have, of late, come to stress the importance of consultation service between the public health physician and the practicing physician. Tuberculosis is a disease in most instances, associated ultimately, at least, with straitened circumstances or even poverty. The physician in charge of the case may feel that consultation is desirable, but owing to the financial status of the patient, may hesitate to ask for it. In such instances, our institution stands ready and willing to step into the breach. We offer consultation service free of charge to such physicians as may request it for patients who are unable to pay for consultation service. Such service may be had either in the home of the patient or in the dispensary. This feature allows the practicing physician the benefit of consultation with a physician who has had this specialistic training for a period of ten, twelve or more years.

(7) X-Ray and Laboratory Service: Associated with consultation, or otherwise, our institution offers to the private physician free x-ray and laboratory service. Patients who can not afford to pay for plates may be referred to our x-ray department, where stereoscopic films are made for a nominal charge

of \$2.00, or as is usually the case in indigent individuals, for no charge whatever. The private physician may also have a written report of the x-ray findings; he may come to the dispensary for a discussion of the plates with the physician in charge, or, if he so wishes, he may take the plates to his office. Similarly, other laboratory work, including sputum and urine examinations, basal metabolism, etc. are at the disposal of the family doctor, free of charge.

(8) Examination of School Children: Our work in the schools offers a fruitful field in which cooperation between the family doctor and the public health physician is particularly productive. All through the country today, the problem of child health is being stressed, and the religion of prevention rather than of cure, is being emphasized. Our organization maintains, as previously mentioned, a staff of twenty-five physicians and twenty-five nurses in the public school system, whose duty it is to go through the schools in an effort to discover frank or suspect cases of tuberculosis among the children. It is part of their program to select physically substandard children, children with defects such as tonsils, defective teeth, anemia, heart conditions, etc., and refer them for observation and treatment to their family physicians. During the fiscal year of 1929, as a result of the work of these twenty-five physicians and nurses, 4,536 school children were referred to private physicians and dentists. A total of 14,129 defects found in school children were corrected during this year, of which 1,913 were tonsillectomies.

This brief analysis should clearly demonstrate the very influential role which a public health worker has in referring patients to the legitimate shop for health—the office of the practicing physician. I must again emphasize that the efficient public health worker, from the very nature of his duties, is the best possible advertising medium in legitimate medicine. The public health officer has much in the way of support to offer to the practicing physician and should be the strongest bulwark of ethical practice. It is his duty to stimulate interest in periodic examinations, in early diagnosis, in re-examinations, and in contact examinations. It is his duty to refer legitimate medical business to the only one legitimately qualified to handle it—the ethical practitioner of medicine. This eventually, in an enlightened public, can only result in improved community health, and make unnecessary publicly subsidized medical organizations. It is also his duty to teach that disease prevention is based on knowledge, and that such knowledge is best and most aptly disseminated by the one in whom the indi-

vidual patient has confidence—the family doctor.

(9) School of Tuberculosis: An important factor in considering the necessity for public health agencies operative in the control of certain disease conditions, has been the fact that our modern medical school curriculum has, in most instances, not been able to supply an adequate training to the medical practitioner of the future, so that he could successfully cope with the disease involved. In tuberculosis this is particularly evident. To remedy this condition in our community, your speaker instituted a School of Tuberculosis at the sanitarium four years ago. This school, cooperating with the four class A medical schools in our community, furnishes a curriculum, principally as a resident clerkship at the sanitarium, to the senior medical students attending these schools. Here, living in an atmosphere of tuberculosis, they are able to observe and to actually perform those tasks essential in learning the diagnosis and treatment of this disease, each under the individual supervision of a resident physician. In the time mentioned, 1,050 medical students have received this training. Everything has been done to stimulate their knowledge, so that they, in the future, will be able to give a type of service which previously was impossible.

In addition, through our dispensary organization working in conjunction with the sanitarium, courses have been given in various districts of the city, cooperating with the local branches of the medical societies, so that the private practitioner at his own doorstep, is able to receive a series of lectures by individuals having specialistic knowledge of such matters. For instance, in the Negro district where tuberculosis had run rampant, fifty-five Negro physicians met in an auditorium: a truck-load of bacteriological material was brought to this hall. Not only were they given the modern conception of bacteriology in tuberculosis, but culture media, guinea pig inoculations, microscopic specimens, were all demonstrated by our director of laboratories, and a group of his assistants. The next lecture on pathology was illustrated profusely with specimens brought from our museum, so that the physicians present would have intimate knowledge of such pathology, as seen by them in the tissue. Lectures on diagnosis, treatment, roentgen-ray followed. Subsequently, three months of intensive training were given to these physicians in the dispensaries adjacent to this district, and on the completion of the course these fifty-five physicians were awarded certificates.

To further aid in the control of disease in this community, a group of nurses from our



organization were assigned to make a house to house survey, and any individual having a respiratory infection was referred to the list of these physicians, which had been published in the newspapers in that district at the time of the awarding of the certificates. These physicians, benefitting through the increased knowledge, were able to render a specialized service. The community benefitted by a decrease of over 100 deaths per annum in the Negro death rate in the past two years. Such co-operation, I feel, is a most material advantage to the medical profession.

In conclusion I would emphasize the importance of stimulating more public health thought in our schools of medical education, so that the practitioner of tomorrow not only would have that knowledge essential in the individual treatment of his patient but would also appreciate the importance of the mass application of individual treatment to the public as a whole; would also appreciate how important a unit the general practitioner is as he stands between the patient and the public health organizations.

### NEUROSES REFERRED TO THE HEART\*

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Cardiac neuroses are functional disorders of the nervous system attended primarily by cardiac symptoms (Paul D. White, *Nelsons Loose Leaf Medicine*, Page 635.)

A cardiac neuroses may be defined as a condition in which many of the symptoms of cardiac disease are felt without there being any evidence of cardiac insufficiency or of organic disease of any of the structures of the heart. (Henry Christian, *Oxford Monograph*, Vol. III, page 310.)

Vanquez "Diseases of the Heart" as far as I can see does not consider the subject in diseases of the heart.

Hippocrates recognized that palpitation might result from emotion and excitement.

Galen devoted part of his sixteen books on the pulse to the influence of anger, joy, sorrow, fear, grief and pain on the heart.

Austin Flint in 1870 wrote "Of the persons who make complaint of symptoms referable to the heart, a large majority suffer from functional diseases only."

In a symposium on heart disease it is wise to consider this subject, but to realize that the primal trouble lies in the nervous system rather than in the heart. I hope the neurologists and neuropsychiatrists will discuss this subject. I shall endeavor to dis-

cuss the neuroses and psychoneuroses in this paper as best I can, but I do not feel competent to do so, as the further I have looked up this subject the more apparent it becomes to me that there is still much difference of opinion amongst these specialists themselves.

To quote from Wechsler "The Neuroses" 1929, Chapter III Etiology of the Neuroses. "Perhaps the most obscure chapter in the whole field of the neuroses is that dealing with causes. Although a great many theories have been advanced it is feared that their very profusion is in inverse ratio to our actual knowledge. In some cases they merely represent verbal cloaks for ignorance. It must be confessed, therefore, at the very start, that despite the accumulation of knowledge of the manifestations of the neuroses and of some of the mental and physical processes underlying them, the ultimate cause or causes are unknown. It is true that psychoanalysis furnishes at present the best insight into the etiology of the neuroses, but there are a number of other theories, each of which has more than a grain of truth. None quite explains all the phenomena. All theories including psychoanalysis assume some sort of constitutional predisposition, some hereditary factors, as the fertile subsoil in which neuroses take root and by virtue of which they thrive. What those constitutional factors are remains obscure." So also there is confusion in the classification of the neuroses. Paul D. White, *Nelsons Loose Leaf Medicine* under Cardiac Neuroses says, "With the assistance of Dr. Stanley Cobb an attempt has been made by the author to achieve a practical classification of the cardiac neuroses, using the psychoneuroses in general as a basis.

#### Classification:

1. Fatigue neuroses (so-called "neurasthenia") one-third to one-half of all cardiac neuroses, including irritable heart of the soldier.

(a) Civilian, in large part young women.

(b) Military, young men.

(i) those in whom the condition was present before military service.

(ii) those in whom the condition was induced by the stress and strain of service.

2. Introspection neurosis (so-called "hypochondria"). Probably the most common type of cardiac neurosis about one-half of all cases.

3. Anxiety neurosis.

4. Substitution neurosis (so-called "hysteria"). An organic symptom is simulated

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to dominate a situation and to relieve an impossible plight.

5. Obsession neurosis (so-called "psychasthenia").

Fully nine-tenths of all cases of cardiac neuroses fall into groups 1 and 2.

Stoddard "Mind and Its Disorders" says under Neuroses "The functional mental disorders are classified as neuroses, psychoneuroses and psychoses according to the age at which the patients libido has become fixed. In the neuroses the etiological conditions belong to the present or comparatively recent life of the patient and not to the childhood as in the psychoneuroses or to babyhood in the psychoses.

He classifies:

- A. Actual neuroses.
  - 1. Anxiety neurosis.
  - 2. Exophthalmic goiter.
- B. Psychoneuroses.
  - 1. Neurasthenia.
  - 2. Hysteria.
  - 3. Compulsion neurosis.

Wechsler "The Neuroses" 1929 classifies under

- A. Actual neurosis.
  - 1. Anxiety neurosis.
  - 2. Neurasthenia.
  - 3. Hypochondria.
- B. Psychoneuroses.
  - 1. Hysteria.
  - 2. Compulsion Neuroses—(Obsession).

So from the first classification all of the neuroses are placed under the psychoneuroses, we find in the last classification, the classes where nine-tenths of the cardiac neuroses, as described by White, are now in the actual neuroses.

There is an interesting tendency. I believe on the part of the neurosychiatrists to depend on psychoanalysis to clear up the condition. Psychoanalysis, in my opinion, is of considerable value in some of these conditions but a great deal must depend upon the psychoanalyst. If he be a man well grounded in medicine and neurology and knows his work thoroughly, by much training, and if added to this he be a perfectly honest man with good judgment, a great deal of good could be done in proper cases. But one can readily see how much harm can be done here as in the realm of surgery or other branches of medicine, especially is this the case since so much "sex stuff" is often taken up. I am sure quite a few persons have gotten very little but pornographic pleasure from it. A goodly number who do not understand the principles of psychoanalysis are playing with it as they formerly did with hypno-

tism, when I was a boy. As regards the extent of sex repression as discussed by the Freudians in the conditions of the neuroses and psychoneuroses, I feel about this as I did in discussing a paper written quite a few years ago by one of my friends, in which he was extolling the marvelous and manifold powers of the endocrines. I said, "I am sure there must be some good in these substances but the whole subject is still in a cave that as far as I can see, is not well lighted and I am afraid that many bears live in that cave and I am not willing to enter until some one has gone in and lighted it up so I can find my way about without encountering the bears."

Now let us leave the nervous system for a while and return to the heart. The cardiac neuroses are also called effort syndrome, neuro-circulatory asthenia, irritable heart, soldiers heart and various other names more or less descriptive of the symptoms or conditions under which the symptoms arise. In my experience, I feel sure that I have seen more people complaining of neuroses than of cases of real organic heart trouble. Christian says, "It seems to be in a large part a question of strain in relation to ability to meet strain." All the symptoms of organic heart disease, such as dyspnoea, palpitation, tachycardia, weakness, precordial pain and hyperaesthesia, cough, faintness, dizziness and fear of death occur in the cardiac neuroses; but with these manifold symptoms there is no evidence of disease of the heart as found on careful physical examination or by X-ray or electrocardiographic examination, and no evidence brought out by careful history of any disease having occurred to the patient to produce organic heart disease. But the history and careful examination shows that the patient has many signs of nervousness; cold hands and feet, dilated pupils, marked sweating, especially in the axilla, often mottled cyanosis of the extremities and a general nervous and irritable attitude.

Many valuable observations of this class of patients have been made in time of war, as by Da Costa at the time of the Civil war and during the World war by Lewis. Wenckebach and many others. A great number of valuable papers have been written on this subject. I had a chance to see many of these cases as a member of the Advisory Board for the District of Kentucky, of which Louisville is the center, and having to examine and pass on the heart and lungs of some 8,000 men, in co-operation with my associates, it was an extremely interesting experience. I am sure that if we had not had the Manual of the War Department containing the expe-



rience of these observers I have mentioned above, we would have been absolutely upset in our judgment and have considered that there was a large amount of organic heart disease in the drafted men. At first we thought there must be a whole lot of hyperthyroidism overlooked in these men. But as we were not permitted the use of the x-ray or basal metabolic tests, we had to "keep our shirts on" and observe and follow the valuable advice of the older heads. We found many pulses 120 to 150 when they came into us, not infrequently systolic heart murmurs, and slapping first sounds, with pulsations in the neck. But when we looked on these carefully and took careful histories we could find no evidence of rheumatism, or of attacks of tonsilitis or other diseases to produce heart disease, and by carefully mapping out the size of the heart, found no enlargement. Then we could see why we were told to have this sweating trembling boy do one hundred hops and after two minutes rest, take his pulse, and if it was under 100 per minute (and most of them were) and he gave no history of rheumatism or other heart disabling disease, we must pass him on and let the higher-ups determine his ultimate fate as to service. We learned a lot and the boys took to it kindly in most instances, and if they came back for further examinations many of the symptoms had passed away by reason of the fact that they were game, and also "in the army" and many had already learned to adjust themselves to the strain that they had been going through. But we had no way to make a complete nervous and psychiatric examination and so we sometimes picked up a severe neurosis and probably many of these are still in a hospital or getting pensions.

Most cardiac neuroses we see in civil life are not severe forms of neuroses, but when we do get the difficult cases, they are hard to relieve, and relief is all we can expect, as the symptoms recur with strain to which they cannot adjust themselves. Often this is brought about by some acute infectious disease from which they recover slowly, some intercurrent trouble or accident.

The mild cases are often only cardiophobia, probably produced by some over-zealous doctor putting too much stress on unimportant symptoms, or by taking the advice of some foolish friend. The treatment depends on the type and severity of the neurosis. The treatment resolves itself into two factors, psychotherapeutics and hygienic, after a careful complete history has been taken and thorough sympathetic physical examination made—this may often have to include more special laboratory tests than on an individual with organic disease, for these individuals

themselves must be convinced that no stone has been left unturned, before the doctor can convince them that the heart is not at trouble instead of the nerves. Simply telling these patients that they have no organic heart disease rarely does any good unless you can explain to them why there are so many symptoms of heart disease. The psychotherapeutic treatment should consist in the doctors explaining that his suggestions come from an understanding heart—that is, sympathy—but that he expects in the management of their case to hold a firm rein but not to use a snaffle bit. These cases need firm sympathy and kind suggestions. To tell them that there is absolutely nothing the matter with them makes them mad and only causes a lack of confidence. They need explanation and encouragement. The bad cases will usually need to be turned over to a worthy psychiatrist. Most of these cases are of the visceroprotic type and need careful explanations as to diet and rest and graduated exercise. Much good is often done by cool baths followed by friction. But of all things, they need utmost confidence in their doctor and he should be the type to deserve their confidence. As to medicines, I believe the fewer we give the better the patient gets on. For the irritability, we may have to give bromides or some of the modern substitutes for a short time and in moderate doses. If iron is really indicated it should be given. This type of patient reacts poorly to surgery. So the fewer the surgical operations done the better it is for the patient. In times past much has been said about the endocrines in the neuroses. I am convinced that the better they are studied neurologically, the less need there will be for endocrinology. One must remember that while most of these cases are of the visceroprotic type, occasionally they occur in the directly opposite type. It is also well to know that a cardiac neurosis may occur in patients with organic heart trouble that has been compensated.

In *Annals of Internal Medicine* for October, 1929, there is an excellent article on "The Relation of Psychiatry to Medicine," by Austen Fox Riggs. An article I would highly recommend. After showing the relation he goes on to point several ways it might be accomplished. The first of these is the following: "Let us begin at the beginning. Let us teach more neurology and psychiatry in the medical schools. Already in one of our leading schools these subjects are allotted slightly greater time in the curriculum than surgery. This is progress worth noting and an example worthy of emulation."

## DISCUSSION

**W. E. Gardner, Louisville:** Dr. Morrison has just remarked to me that he would be glad to have me enter into the discussion of his paper from the neurologic standpoint, and I should like to say a few words regarding this phase of his subject.

We have so many patients coming to us who are suffering from an anxiety neurosis, who believe they have organic heart disease. In most of these cases there have been unhappy situations in their lives which they have not met frankly, and therefore they are constantly worried. They begin to develop symptoms, sometimes neuroses referred to the heart and sometimes to the abdominal region. Neurasthenia, hysteria and psychasthenia are all more properly classified as "psycho-neuroses." In fact, most neurologists claim now that the anxiety neurosis is the only true neurosis. In the neurosis pure and simple there is little or no mental involvement. In the anxiety neurosis, however, there is an attempt to escape from reality. It is necessary to go into these cases frankly and into the home life intimately. The internist can go into this and help a great deal if he can assure the patient that he has no organic disease.

When it comes to making an elaborate analysis of any of the psychoneuroses, previously mentioned, it is a long-drawn-out affair. It often-times requires that a competent psychoanalyst spend months and even years with the patient.

Psychoanalysis is a very technical, highly specialized method of investigation which attempts to go back and try to pick up repressions which have occurred early in life. The child, for instance, becomes abnormally fixated upon the father or mother, and this fixation may be unconsciously carried on through life; or the libido, or interest, may become abnormally attached to his own body and he becomes introspective later in life, or is never able to get his attention off himself. Personally, I never make any pretension of an elaborate psychoanalysis of these cases. It is a specialty within a specialty.

In the anxiety neurosis, however, where the attention is abnormally fixed upon the heart and the patient has had a thorough examination by a competent internist and is assured that he has no heart trouble, if we go into the patient's domestic, economic or social life we will find he is not very happy, and if we can get him to make the proper adjustments to external reality I think we can be of very great benefit to him. The complex formation in such cases is usually of comparative recent origin.

I know that Dr. Morrison, as a great many other internists, has been of immense value to his patients by his insight into this condition.

The paper has been most interesting, and there are a great many more features we could dis-

cuss in detail if the time permitted.

**B. S. Rutherford, Bowling Green:** I think we all, to some extent, practice psychological therapy either intentionally or otherwise. My experience with neurotic hearts has not been very pleasant; my success has not been great in relieving the patient. We frequently find this in ladies; it is more prevalent in that sex than in men. But men become effeminate sometimes, so the rule applies to both. "Convince a woman against her will and she is unconvinced still." My success has not been good in relieving this kind of patient.

As Dr. Gardner stated, it usually refers back to some inherited tendency or taint in the system which one cannot eradicate. I usually select some doctor and tell these patients he is the best doctor on neurosis that I know, and shift the responsibility. We know we have to remove the cause before we can relieve the symptoms, and the cause I am very unsuccessful in removing.

**Morris M. Weiss, Louisville:** As Dr. Morrison mentioned, functional heart conditions are encountered as frequently in private practice as organic heart disease. While such functional disturbances are very often psychogenic we sometimes do not search carefully for organic factors in the patients. Aerophagic individuals or "stump suckers" will complain of palpitation. Tobacco can produce heart pain in a susceptible person. Gastro intestinal disturbances may produce any of the cardiac irregularities. Foci of infection can cause effort syndrome. Mild degree of hypothyroidism may produce symptoms referable to the heart. Such patients complain of easy fatigue, moderate shortness of breath, and even at times of palpitation. Physical and roentgenological examination of the heart is negative. A basal metabolic rate determination will reveal the true basis for the complaints of these individuals. When the basal metabolism becomes normal the symptoms disappear and when the thyroid therapy is allowed to lapse the symptoms reappear. Because organic factors may play a role, an individual with functional heart symptoms should not be referred to a psychiatrist until all abnormal bodily states have been corrected.

**John Harvey, Lexington:** I think these patients are the most interesting group of patients that come into our offices. As Dr. Morrison has said, even more frequently they are met with than those with organic heart disease. They have frequently been from one doctor to another, so that most of us don't have time to talk to them. We frequently recognize, from examination of the heart and noting the type of individual, that it is a neurosis referred to the heart, but simply telling the patient that does not help much. I think the worst thing that can be told these patients is that it is simply imagination, and we



have that story told to us entirely too often. In order to instill confidence into the patient it is necessary to go through an even more elaborate examination than in organic heart disease. After that, frankness with the patient, telling him definitely that it is no imagination, but trying to get him to understand the underlying conditions, which is difficult, will get us farther. We wish we were the type of psychoanalyst that Dr. Morrison says are so hard to find. I think the real difficulty is that even if we understand that it is a neurosis, we do not have the time to sit down and talk to these patients on repeated visits to the office and use up most of our office time with them.

**Clement V. Hiestand**, Campbellsville: We have quite a number of this type of patient in my county, and they have given me more trouble than anything I have had to deal with. In these cases it doesn't benefit them to tell them it is imagination.. There is a little something that goes with a doctor—prestige, let us call it—which may enable him to treat these cases a little more successful than the bill collector or the insurance solicitor; yet I sometimes think the collector understands human nature, or psychoanalysis, better than I do. If you can get the patient interested in something else, you will help him a great deal; if you can't, he is just as liable to drift to the adjustment man who will get his confidence where you won't. If you find a man who can cure these cases, we will get them to him in some way, if only by public subscription. I have three such cases on one street that isn't 100 yards long, two in the same family. It is imaginary, but I don't know how to cure them..

**C. G. Follis**, Glasgow: There are one or two points that I would like to stress, because I don't quite agree with some men that so many of these people only imagine they are ill and therefore need no consideration. I think a great many of these patients have been wrongly diagnosed by physicians previously and because of this error in diagnosis and lack of attention they go to other doctors. In a great many cases a patient comes to a doctor, and without thorough examination he is told by the doctor that he has heart disease for which he is treated. One statement like that may require the services of a doctor for years and make an invalid out of the patient. The fact that a patient comes to a doctor for these symptoms is no different from any other group of symptoms. Most doctors agree that 75 or 80 per cent of the cases they see are insignificant. Often the symptoms are only small matters that would disappear in themselves with no treatment. If these patients state they have symptoms of the heart disease, they should be carefully examined as any other patient. Medicine has so changed recently that now one of the greatest duties of the doctor is

to determine what is wrong and what isn't—in other words, diagnosis instead of treatment. I have seen patients who have been in bed for months with nothing seriously wrong, just because some doctor hurriedly, or for some other reason, told them they had heart trouble. The point I would like to stress is that we should be very careful in telling the patient that he has heart trouble until we are quite sure that he has.

## FAILING HEART OF THE FIFTH AND SIXTH DECADES\*

G. M. WELLS, M. D.

Glasgow.

This subject, the failing heart of the fifth and sixth decades, is a very large subject, too big to be covered fully in a paper of this kind. Therefore, I will endeavor to cover only the most probable causes of a failing heart with special reference to their Etiological and Pathological factors.

The three large groups of heart conditions in which we are called to see are first, Chronic Myocarditis and Chronic Valvular disease, which will be considered together; second, Hypertensive heart disease, including Hypertrophy and Dilation, associated with or without kidney disease and Arterio Sclerosis; third, Argina.

Our advance knowledge of the clinical pathology of the circulation (heart, blood vessels and circulatory fluid) enables us to formulate some more or less definite rules in regard to Etiology, Prophylaxis and treatment of circulatory disturbances.

Great and continued strain is often followed by Hypertrophy of heart tissue, and eventually by dilation. The heart being a hollow muscle filled with fluid may suffer permanently by reason of prolonged and undue strain.

Even in young persons, as in the case of children afflicted with severe paroxysms of whooping cough, the strain upon the heart may bring on an enfeebled circulation. Thus, any well directed effort to lighten the strain of a severe paroxysmal cough may be far reaching in beneficial results. In adults whose heart and blood vessels have already suffered from the inevitable wear and tear of life, the avoidance of undue strain is of prime importance as far as comfort and tenure of life is concerned.

When Arterial pressure from any cause whatsoever is markedly and permanently increased, there is danger of capillary rupture with its various sequelae. Therefore, a time-

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ly readjustment of a faulty hygiene may prevent untold misery and prolong life. Infection of all kinds are liable to permanently damage the circulatory organs as well as the circulatory fluid. From a clinical standpoint the blood may be looked upon as a tissue liable to become infected and to carry infection to all other tissues; on the other hand, a certain immunity to infection may be inherited, acquired or even lost. Lowered resistance to infection and lost immunity demands hygienic living in its broadest sense.

Discussing separately the various causes or classifications of the failing heart, will consider first Chronic Myocarditis and Chronic Valvular disease. These will be considered together for two reasons: first, because primarily the symptoms and other disturbances of each depends on the condition (functional efficiency of the heart muscle); and second, because the same principles of treatment apply for each condition.

Three factors may enter into the production of symptoms and disturbances resulting from chronic heart disease: first, the muscle is in itself inefficient in its function; second, valve lesions cause mechanical hindrances to muscle effectiveness; third, arrhythmia disturbs the orderly sequence of muscle contraction there by hindering their efficient action. Indirectly increased peripheral resistance is a factor in causing cardiac inefficiency. Of these, in relative importance muscle comes first and the mechanical effect of valve lesion last. Regarding etiology chronic cardiac disease within itself has no specific etiology. Of the cause of chronic valvular disease, rheumatic fever comes first. Chorea and tonsillitis, believed to be closely allied to rheumatic fever, also play an important role in chronic valvular heart disease.

SYPHILIS IS PROBABLY THE ETIOLOGICAL CAUSE OF MOST AORTIC DEFICIENCIES

Chronic valvular disease, with few exceptions, has its inception in childhood or early adult life, frequently many years have elapsed before any signs of Cardiac disease appear; however, after the fourth decade it is rare to have the beginning of symptoms of chronic valvular disease of the heart caused by valve lesions. Therefore, the diagnosis of Chronic Cardiac Valvular disease should be made with great caution, when the patient develops symptoms of chronic valvular disease of the heart after the age of fifty years.

The causes of Chronic Myocarditis are less well understood than those of Chronic Cardiac Valvular disease. It is my belief that previous infections of various kinds play an important etiological part. These do not include rheumatic fever when we exclude cases with organic lesions since it is extremely rare

for this disease to cause lesions in the heart muscles without at the same time causing valve lesions.

Hypertension and Arteriosclerosis (of which we will mention later) are antecedent to and are important causative factor of Chronic Myocarditis. Arteriosclerosis without hypertension damages the heart muscles most probably by destroying its nutrition as a result of Coronary involvement.

Hypertension with or without Arteriosclerosis add a factor of strain from peripheral resistance.

In contrast to Chronic Cardiac Valvular disease the symptoms from Chronic Myocarditis rarely occur before the age of forty-five years, and if the patient is over forty-five years of age when they appear the chances of it being Chronic Myocarditis rather than a valvular lesion are very great.

The second group which we will consider is Hypertensive heart disease. By this we mean a group of cases believed to be characterized during life by a more or less permanent hypertension and showing a hypertrophied and dilated heart without valvular lesions. Arteriosclerosis or nephritis may be absent or present. This includes all hearts which are enlarged but which show no mechanical obstructing lesion in valve or myocardium. Arteriosclerosis adds a factor of strain from peripheral resistance.

Hypertrophy and dilatation are the most common of all heart diseases, in fact equals the sum total of all other heart diseases combined.

Hypertrophy and dilatation may be conveniently discussed together since they are so frequently associated and since the cause of one with certain limitations is the cause of the other.

Hypertrophy is enlargement due to overgrowth of muscle tissue. It may involve the heart as a whole or only certain chambers. Dilatation of the heart is due to over stretching of muscle tissue; like hypertrophy it may be total or partial. Over work of the heart invariably, if long continued, leads to hypertrophy or dilatation, probably both.

When, however, the demands are made gradually and not excessive and the nutrition of the heart is good hypertrophy is the more common. The best working hypothesis seems to be that whatever influences produce a chronic hypertension will produce as a result cardiac enlargement. We have then besides local mechanical obstacles only one other common cause for cardiac enlargement hypertension however produced.

Nephritic hypertension seems to be a clearly established type. Whether arteriosclerotic hypertension is a reality or not seems to be



questioned. Certainly there are many cases showing hypertension in which we are not able to definitely diagnose arteriosclerosis or any other cause.

From some unknown reason a hypertrophied and dilated heart is prone, sooner or later, to fail. Just why this failure occurs does not seem to be clear. It was formerly taught the hypertrophied heart was as strong or stronger than the normal heart, but when dilatation supervened the stretched thin organ became inefficient. Dilatation was regarded as a late mechanical process which began as a simple hypertrophy, but in the very early and mild case we now believe they exist together; neither do we believe myocarditis has any demonstrable part in producing the failure of enlarged hearts. Most of them show no myocarditis, although we do know very large hearts even without valve lesions are apt to fail, perhaps from chronic effort against hypertension. Circulatory failure in the absence of considerable cardiac enlargement is not common except in connection with some specific cause. Is surgical operation, hemorrhage infective or poisoning but the greatly enlarged heart may become incompetent without any special cause and without giving much warning that it is failing.

For the third heart condition, in which we are called to administer at this age of life, will consider Angina Pectoris.

It is said, and probably rightly so, that Angina is not a disease but only a symptom, but I am mentioning it here for the reason we are often called to see a patient with this symptom, also from the fact that our mortality is high. This form of circulatory disturbance is supposed to be due to imperfect cardiac nutrition and changes in the coronary arteries. As was said in the beginning, it is not a disease but a group of symptoms with no one unifying pathological lesion as an explanation acute and chronic syphilitic aortitis, arteriosclerosis and coronary obstruction may cause these symptoms.

Ultimately the diagnosis will be that of the underlying disease and the pain will be regarded merely as a symptom or as a result. Various theories have been advanced to account for the symptom of Angina Pectoris with its two outstanding features, pain and sudden death. Among the various theories may be mentioned muscle spasm and muscle paralysis, a dilatation with stretching of cardiac nerves, a neuritis of the cardiac plexus. Ischemia of heart muscle and, in my opinion, the last mentioned is the most probable cause.

#### MANAGEMENT IN GENERAL

To give the treatment or management of the various types of heart failures would re-

quire too much time, hence will only give a few points of special interest with regard to the class as a whole.

The aim should be to promote in every way the nutrition of the heart muscle and to eliminate as much as possible all causes that may throw an undue strain upon the heart and that may increase the already hypertension or valve defect.

The patient's whole manner of life must be carefully reviewed and his work both mental and physical his rest, his recreation and his diet adjusted to the reserve power of his heart.

The element of rest is of vital importance, but good judgment is required to determine how complete it should be and for what period of time.

The question of diet is scarcely less important than that of exercise; small meals of readily digestible food are to be recommended. The evening meal should especially be light; muscular exercise or mental excitement of any kind after meals are particularly harmful. It is a known fact that cold weather has some direct influence on the failing heart, symptoms being worse in cold weather. Therefore a warm climate with relative low altitude is beneficial.

No mention will be made of any special treatment, as this would take into consideration each type of failing heart separately, necessitating more time than can be allotted; but in conclusion will give a summary of my investigation.

First: Over 90% of all genuine heart diseases fall under three heads, Rheumatic, Syphilitic and Hypertensive.

Second: Rheumatic usually begins in early youth. Syphilitic is most common between the ages of thirty-five and forty-five. The Hypertensive after the age of fifty. Heart disease in young women practically are always Rheumatic. In middle-aged men, without history of rheumatism, syphilitic. In elderly persons, previously free from heart trouble or circulatory disease, is usually of the hypertensive type.

Third: Each of the three divisions has not only its own characteristic time of life, but attack a particular part of the heart. (a) Rheumatism usually affects the mitral valve. (b) Syphilis falls upon the aortic arch, producing aneurism, angina pectoris or aortic valve lesion. (c) Hypertensive disease enlarge the whole heart, leaving the valve intact, although a heart murmur is usually heard.

Fourth: Within the field of the three types mentioned Hypertensive heart disease occupies by far the largest area.

## BIBLIOGRAPH

1. Caille, Augustus, M. D., F. A. C. P.
2. Christian, Henry A., Harriett, James B., Mears, Frank Sherman, The George Blummer—Edition of Billings and Forcheimer, Therapeutics of internal diseases, Volume V.
3. McKenzie, Sir James, Principles on Diagnosis, and treatment in heart affections.
4. Allbut, Sir Clifford, Arteriosclerosis.
5. Cabot, Richard C. Facts About the Heart.
6. Stevens, A. A., A. M., M.D. Practice of Medicine.

## DISCUSSION

**B. S. Rutherford, Bowling Green:** It has been my experience, especially with old people, that where the myocardium is not too far degenerated a great deal can be done to prolong life. I would relate one case in particular that will carry out my views. About ten years ago I saw an old lady eighty years of age who was suffering with auricular fibrillation. Her pulse as best I could count was beating about 180 per minute. Those cases are so extremely irregular and weak that you can't count it with any degree of accuracy. Her case was purely cardiovascular. That was the first time I had seen her. Her condition at that time looked like the time was short until she would pass away. It was a case in which the sino-auricular node was suspended in its function, the auricle was in a state of trembling diastole, the impulse that was furnished was ectopic in its origin, furnished by isolated foci, to which the heart was responding at frequent and irregular intervals. I immediately endeavored to digitalize this old lady. I gave her a tincture of 2 centimeters every four hours, and in thirty-six hours I had her digitalized and normal rhythm had been restored. She had a murmur which proved to be of relative insufficiency, as it disappeared when we got her digitalized.

That old woman lived to be eighty-seven years old, but she had to take digitalis almost continuously, with occasional intermissions, as long as she lived. She found out the good that it did her and she knew by experience how much she should take and how often she should take it. I saw her from time to time, but with little attention from me she lived a rather comfortable life.

**G. M. Wells, (in closing):** I just wish to thank the Doctor for his discussion, and in conclusion, as far as management is concerned, to impress upon you the great thing is the well-being of these patients and in keeping them well to instill confidence. Let them know you are vitally interested in them. They will also like for you to spend much time with them. I doubt if it is wise to tell them just how serious their heart conditions are, but tell them that you are doing everything you can for them, and get their confidence and make them know you are vitally interested in them and are going to do all you can for them. I think their well-being will be much more satisfactory, and it will be much more satisfactory for you.

## LIVER FUNCTIONAL TESTS AND CHOLECYSTOGRAPHY AS AN AID TO SURGERY\*

M. J. HENRY, M. D.

Louisville

In the past few years there have been developed several laboratory procedures that have added much to the diagnostician's ability to disclose the cause of many cases of that vague disorder known as dyspepsia.

In indefinite disturbances manifested by symptoms referable to the digestive system the diagnostician is frequently anxious to know something about the state of liver function, and these laboratory developments have, to some extent, enabled him to determine this point. Despite these tests it is nevertheless true that a perfectly satisfactory chemical test of liver function has not been discovered.

The most used liver function tests are the Icteric Index and the van den Bergh test.

By the former test the presence of jaundice can be determined before there are any clinical evidences of this condition. This test is an aid in discovering any interruption in the normal bilirubin content of the blood, besides giving a numerical appraisal of the degree of jaundice present whether that jaundice be evident or latent. Often an abnormal Icteric Index will be the first sign of derangement of liver function. The test is merely a color test of the blood serum, comparing the serum with a standard which will show the amount of bile pigment in the blood serum.

Of more value is the van den Bergh test, which not only shows the presence of bilirubin in the blood but also determines its source, this enabling one to know whether the bilirubinemia be of hepatic or hematogenous origin. Since bilirubin in the blood can be due either to obstruction in the biliary passages or to degeneration of the red blood cells in the vessels or in the endothelial system, the chief organ of which is the spleen, a localization of the source of the pigment is much to be desired.

The van den Bergh test is a diazo test and is based upon the difference of the reaction of the blood serum in water and in alcohol. These media produce reactions which are termed direct and indirect.

If the jaundice be of the obstructive type a definite reaction is obtained with the watery mixture, while in hematogenic jaundice a reaction is obtained with the alcoholic mixture. In many of the blood dyscrasias there are associated digestive symptoms and any test which permits the diagnostician to determine

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the source of the jaundice present is a valuable adjunct in differential diagnosis.

By far the greatest advance made in the past twenty-five years in the diagnosis of digestive disorders is the discovery that certain dyes are eliminated by the liver, and concentrated by the gall bladder, and when present in sufficient concentration, are opaque to the roentgen ray. This permits one to visualize the gall bladder, which is normal or but slightly diseased, and renders the x-ray study of the gall bladder as accurate almost as the x-ray study of the gastro-intestinal tract. The test is known as cholecystography and is often referred to as the Graham-Cole test.

Each of you is, I am sure, familiar with what many of the writers have said in the past five years concerning the technique, interpretation and value of this test. It is not the intention of the writer to consider what others have said in regard to the Graham-Cole test, but rather to report the results obtained by it as applied in our own practice.

We began using this means of diagnosis about Dec. 1, 1925, and since that time we have performed the test in our office 588 times, and in addition have had the test done an unknown number of times at the hospital where the interpretation has been done by the hospital roentgenologist. As we have no means of determining the accuracy of our interpretation in those cases not operated upon, this statistical review will deal only with the operative cases where we have had the opportunity to test the accuracy of this method.

Some of these operations were done by the writer, the majority of them were done by Dr. Irvin Abell, but in practically every one the writer has taken part. In all but twenty-three of the operative cases (which were done at the hospital) the roentgen diagnosis has been made by the writer, thus giving him an opportunity to see the case both from the roentgen and surgical standpoints. During the period covered by this report we performed 414 operations upon the biliary tract; of which number 138 had had a Graham-Cole test. This is to be expected for when a case is frankly one of cholecytic disease there is no need of performing the test, and it is in the indefinite case that the chief value of the test lies.

Cholecystography is done either by the oral or the intravenous method. This paper will not attempt to discuss the relative merits of each method, as in all our cases the dye has been given orally.

Early in our work we used the enteric coated capsules of sodium tetra-chlorophenolphthalein, but since the marketing of an emulsion of the dye we have used it to the exclusion of the capsules. The capsules often failed to disintegrate in the alimentary tract

leaving one in doubt as to whether or not a sufficient amount of the dye had been absorbed to give a satisfactory image. The emulsion has eliminated this serious drawback to the test.

In our earliest cases we used preliminary catharsis, but afterwards yielded to those who maintained that catharsis was not necessary, or even a detriment to the obtaining of satisfactory results.

A brief description of our technique might help you to appraise our results. Nearly every roentgenologist varies the technique to some extent, and I shall not defend ours more than to say that it has proven satisfactory and will not be changed in the near future.

We use the "Tetradol Emulsion" and follow the directions printed on the label. These directions instruct the patient to eat a regular meal (fats excluded) at 5 p. m. Two hours later the dye is taken in water or grape juice. The patient is requested to remain as inactive as possible, preferably by going to bed, following the ingestion of the dye. The dye sometimes produces nausea, or even vomiting, and absolute rest will lessen this tendency. Occasionally the dye will produce catharsis, which is rarely drastic enough to be annoying. The patient comes to the office at 9 a. m. without having taken breakfast. Roentgenograms are made at 9, 10 and 11 a. m. The patient is then sent out to drink a half pint of cream. He returns for the final roentgenogram at 1 p. m., which is approximately one and one-half hours after the ingestion of the cream. The patient is then given a watery barium suspension and the stomach and duodenum are studied in the hope of discovering some of the indirect evidence of disease of the gall bladder, and at the same time eliminate intrinsic gastric and duodenal disease as a possible cause of the digestive disturbance.

In interpreting our findings we group them under four heads:

- (1) Failure to visualize the gall bladder shadow.
- (2) Faint visualization of the gall bladder shadow.
- (3) Irregular contour (including mottling) of the gall bladder shadow.
- (4) Delayed emptying time of the gall bladder.

We class as normal emptying any reduction of 50% or more in the size or density of the gall bladder shadow.

It can be readily understood that often the findings present more than one of these features, but in this study the cases will be grouped according to the outstanding finding.

Then, too, in this study we will use numer-

als instead of adjective to describe the pathological process found at operation; thus we will divide cholecystic disease into grades 1, 2, 3 and 4.

Under grade 1 we will class all cases showing one or more of the following minor evidences of cholecystic disease: slight thickening of the gall bladder wall; light, filmy adhesions to the surrounding structures; and the presence of enlarged nodes along the cystic duct. No case in which cholelithiasis was found is included in this group.

In grade 2 were placed those cases showing a moderately thickened gall bladder, with or without stones, and those cases showing dense adhesions to the surrounding structures.

In grade 3 were placed those cases showing greatly thickened, edematous or contracted gall bladders, usually densely adhered.

In grade 4 were placed those cases showing very marked evidence of disease, such as marked edema of the walls, gangrene and the empyemata of the gall bladder.

Many of the cases, especially those in grades 3 and 4, had with them associated lesions of the biliary or digestive system, but these associated lesions will not be considered, as the Graham-Cole test is essentially a test of the gall bladder function.

Of the 138 operative cases that had been subjected to a Graham-Cole test, 59 showed a failure to visualize the gall bladder. In these 59 cases the operative findings were:

Cholecystic disease, grade 1 .....	3
Cholecystic disease, grade 2 .....	21
Cholecystic disease, grade 2 with stones.....	10
Cholecystic disease, grade 3 .....	1
Cholecystic disease, grade 3 with stones.....	15
Cholecystic, grade 4 all showing stones.....	9

A consideration of this group yields some interesting facts. In no case was there a normal gall bladder. In but 3 of them, or 5%, was there only slight evidence of cholecystic disease; in 95% the disease being very definite. Also that 34, or 57%, of them showed the presence of cholelithiasis.

The second group—the demonstration of a faint gall bladder shadow—had 27 cases, the operative findings in which cases were:

Cholecystic disease, grade 1 .....	3
Cholecystic disease, grade 2 .....	13
Cholecystic disease, grade 2 with stones....	6
Cholecystic disease, grade 3 .....	1
Cholecystic disease, grade 3 with stones....	4
Thus in 88% the disease was well marked, and stones were present in 37%.	

In the third roentgen classification we placed those showing an irregularity in the contour of the gall bladder shadow. In this group there were twenty-one cases, the operative findings of which were:

Cholecystic disease, grade 1 .....	5
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Cholecystic disease, grade 2 .....	5
Cholecystic disease, grade 2 with stones....	10
Cholecystic disease, grade 3 with stones....	1
In this group 76% showed more than a mild cholecystitis and more than 50% showed the presence of stones.	

In the fourth group: delayed emptying time; these were twenty-three cases. In these cases the operative findings were:

Cholecystic disease, grade 1 .....	4
Cholecystic disease, grade 2 .....	11
Cholecystic disease, grade 2 with stones....	3
Cholecystic disease, grade 3 .....	5
This group shows more than slight disease of the gall bladder in 83%, while but 13% of the cases showed cholelithiasis.	

In addition to these cases there were eight in which the roentgen findings did not harmonize with the pathological process found at operation.

In these cases the roentgen examination revealed what we termed a normally functioning gall bladder, yet at operation the following findings obtained:

Cholecystic disease, grade 2 .....	5
Cholecystic disease, grade 2 with stones....	1
One case in which the presence of a single stone was the only sign of cholecystic disease, and finally one case in which the gall bladder was grossly normal but was removed because of a definite history, without the discovery of any other lesion to explain the symptoms, and this gall bladder on microscopic examination showed a chronic cholecytitis.	

Now to summarize the value of the Graham-Cole test as applied in the one hundred thirty-eight cases in this series we find that the roentgen diagnosis was wholly in error in 8, or 5.8%.

In the one hundred thirty cases in which there was roentgen evidence of disease, this condition was slight in but 15, or 11.5%.

It is also interesting to note that in this entire series cholelithiasis was found in 44.6%.

Several writers upon the subject of cholecystography have stated that the density of the shadow of the gall bladder is the most reliable sign to be considered in judging the condition of this organ. Some have practically abandoned other findings as evidence of disease unless stones are shown. In this series there were 86 cases showing either no gall bladder image or a very faint image and in 80 of these, or 93%, the operative findings showed a cholecystitis of more than slight extent.

The experience as detailed in this paper has convinced the writer that the roentgen diagnosis of cholecystic disease by the oral application of the Graham-Cole test is a most valuable method of determining the condition of the gall bladder and is superior to any other lab-



oratory means instituted for this purpose.

The results obtained in this series of cases have, in the opinion of the writer, been satisfactory, and such results can be obtained by any physician who has an x-ray apparatus and who has had sufficient experience with his apparatus to produce satisfactory roentgenograms, and interpret the findings so obtained. It is a test that can be applied in the office, rarely requiring hospitalization, and is relatively inexpensive.

It is the writer's belief that a wider application of this test will materially decrease the number of cases wherein the appendix alone is removed because of digestive symptoms, and will enable the internist to treat his dyspepsia cases more intelligently when for some reason or another surgical treatment is not indicated.

This study was undertaken and given in the hope that the man who does his own x-ray work will realize what he can accomplish in his own office in determining the condition of the gall bladder.

#### DISCUSSION

**D. Y. Keith**, Louisville: There are two or three points that I want to speak of. One of them is that our experience with the oral method of Graham test bears out what Dr. Henry has said. We have had several cases in which we have checked up by the intravenous method, and in no case have we found that the diagnosis was changed after giving the dye intra-venously. I am quite sure that the oral method has come to stay.

You will find, scattered throughout the country, roentgenologists, some of whom are using intravenous administration entirely and some of whom are using the oral, and there is quite an argument between those two groups. As far as the roentgenologist is concerned, the intravenous method is much easier for him, but if I were going to use the test, I would much prefer the oral method. This is borne out from seeing films by prominent roentgenologists throughout the country, where intravenous has been used and others who are advocates of the oral method, and the few cases that I have checked up by the intravenous method.

One other remark which Dr. Henry didn't refer to and which will help him, will be either the lateral or oblique film. I am sure in a great many of the stones that give a shadow that is not characteristic of the gall-stone, that is with dense margin and light center, you will be confused as to whether you have a kidney stone or not. A good lateral plate, if the stone is dense enough, will always bring that out. If it is a kidney stone, it will usually show through the bodies of the spine, and if it is a gall-bladder, it is anterior to the spine.

I am sure with the addition on a few cases of the oblique or lateral film, he will be assisted in

making a more accurate diagnosis.

**C. W. Dowden**, Louisville: I am sure we would all be interested in knowing of any method that would give us a clue to the presence of chronic gall bladder disease, or gallstone in which the Graham-Cole method failed to be of value, which, fortunately, is in a very small number of cases.

I feel rather hesitant about injecting into the discussion a procedure which Dr. Henry stated in the beginning of his paper he preferred to leave out because of having had no experience in that particular test.

However, since in my opinion, it does offer a very reliable index and does have a bearing on gall-bladder surgery, I shall mention it.

My attention was called, two or three years ago, to a paper coming from some place in the East. I have forgotten the man's name. They had done a tremendous amount of work on cholesterol metabolism, and they referred particularly to the hypercholesterolemic crisis, that occurs in a certain type of gall-bladder condition where there is a disturbance of the cholesterol metabolism. During the attack of colic and soon after the cholesterol rose to a very high level and during the interval between the attacks, the cholesterol dropped to its normal or a low figure.

I have had opportunity to observe this in probably no more than a half dozen or so cases, because of course, the percentage of such gall-bladder cases is rather small. But to cite one specific case—I can recall at least two that are similar—I have in mind a patient who had been examined repeatedly for gall-bladder disease by the Graham-Cole method on account of frequent attacks of abdominal pain. It was done in Louisville two or three times. It was done at the Mayo Clinic, and it was also done at Johns Hopkins, and the reports were all negative in every instance.

I was called to see him one night during one attack and it was so typically a case of gallstones colic that practically no doubt remained.

Determination of the blood cholesterol, which had been made in the course of the routine examination before his attack was 130. The morning following his attack his blood cholesterol had risen to 290, and a week afterward his blood cholesterol was down again to 130.

I think it is well worth trying during an attack of pain, if your Graham-Cole test has been negative, to see whether or not the cholesterol rises to this tremendous height and then drops.

I am sorry to have injected that into the discussion.

**M. J. Henry**, (in closing): I think the part that Dr. Dowden brought out is interesting. In my reading about the blood cholesterol, I couldn't find anybody who made real, positive statements, I don't think Dr. Dowden, himself,

has made a very positive statement. He says it "might" help, but in his case he said that when he went there at night, she had a typical gall-bladder colic. The case where we need help is in the case of cholecystitis where there has been no severe conc, or in those who have stopped having colic and are now having digestive symptoms.

You know that all writers on the subject maintain that the greatest error is in calling the reaction normal, when in reality there is disease. I think Kirklin has shown that at first he had about a 30 per cent error in that line. He would say a gall-bladder was normal, gave a normal Graham-Cole response, and on operation they would find disease. In his more recent publications, I think that percentage of error has been decreased to somewhere around 10 or 12 per cent.

You will notice in the report, that I gave one case that had a stone and yet I didn't see the stone, and the gall bladder responded normally to the test. So one can get a diseased gall-bladder with normal test.

I think the suggestion made by Dr. Keith is a good one. I am sorry that on that one case I didn't take it from that angle, although I don't know that it would have helped me any in that I knew it was gall-bladder, and it wasn't a question there of deciding whether or not the thing was in the kidney or in the gall-bladder.

**Radium in Treatment of Cancer of Breast.**—For operable cases Handley feels that the method of Keyes (extensive and prolonged irradiation by radium tubes), which has given him good early results, must be admitted to equal competition with ablational methods. When a patient asks him whether he advises operation or treatment by buried radium he usually offers her the choice, adding that if she has the investor's rather than the speculator's temperament she will choose operation combined with selective irradiation. He would not, however, give such freedom of choice to all patients. In patients advanced in years, and with myocardial degeneration or organic disease of the heart, a heavy dose of radium may cause irregular and rapid cardiac action, or pericarditis. A left-sided carcinoma in such a patient can be more safely treated by operation than by radium. Speaking on the use of diathermy in breast cancer, he says: The method represents not a mere optional variation in technic but a striking improvement. Its advantages depend mainly on three peculiarities of diathermic cutting: (a) It seals most of the small vessels as it cuts them and so minimizes loss of blood; (b) it divides almost without stimulating them and leaves their exposed ends insensitive; (c) during the operation it supplies heat to the body generally and especially to those parts which are exposed for the purposes of the operation.

## THE INDICATIONS FOR OPERATION IN PEPTIC ULCER\*

BERNHARD NEWBURGER, M. D.,

Lexington

In a condition such as gastroduodenal ulcer in which the pathogenesis is obscure it is not to be wondered at that treatment has not been more rigidly standardized. The whole field of ulcer therapy, especially the surgical aspect, has been in almost constant confusion and today dissatisfaction with the results of both conservative and radical measures are being repeatedly expressed. In this turmoil of opinion unanimity obtains certainly at but two points as regards surgical intervention in peptic ulcer and they are in the event of either an acute perforation or organic obstruction of the pylorus. With those two positive conclusions admitted arbitrary rules must be dispensed with save as they are accepted from authority. Gastrojejunal, stomal or marginal ulcer, and peptic ulcer from ectopic gastric glands will not be reviewed.

A consideration of the operative treatment of gastric and duodenal ulcer may well be divided into that of the complicated and uncomplicated cases.

Hemorrhage of serious proportions occurring roughly in from fifteen to twenty-seven per cent of all peptic ulcers carries a relatively low mortality of probably less than four per cent. Here, for a number of reasons, conservative measures are obviously indicated. Immediate operative mortality would far outweigh that of conservative treatment and the operator might quite easily overlook the hemorrhagic focus. Even the most enthusiastic proponents of intervention are sufficiently cautious to prefer not operating while hemorrhage is going on. In the event that hemorrhage recurs profusely three times the eradication of the lesion by excision or resection should be done.

Such cases, however, are fortunately uncommon. In one series it has been found that if the first hemorrhage is not fatal subsequent recurrence is never fatal, a fact which has led to the feeling that the repetition of bleeding is no more than an index of medical failure; such experience, however, is not universal.

In acute or subacute perforation of a gastroduodenal ulcer, as in any of the other abdominal emergencies from which it requires differentiation such as appendicitis, ruptured tubal pregnancy, mesenteric thrombosis, gangrenous cholecystitis, and so on, time is the

\*Read before the Kentucky State Medical Association at Bowling Green, September 15-18, 1930.



one essential. Whether resection, suture, or suture with accessory gastroenterostomy is done is of secondary, though of marked, importance. Eighty to one hundred per cent recovery may be expected if operation is performed within the first four to ten hours, while delay carries with it a rapidly increasing mortality so that the prognosis is practically nil if forty-eight hours is allowed to elapse between perforation and closure. The occasional occurrence of rupture without a preceding ulcer history should not in the face of an obvious intraperitoneal catastrophe deter one from immediate recourse to laparotomy. Neither should shock put off intervention. Even late cases with frank peritonitis should be given the benefit of surgery.

The remote results, though not as perfect as they were formerly believed to be, are fair with fifty per cent or more cures. In some of the patients subsequent pyloric stenosis, repetition of the perforation, hemorrhage or intractable pain may force a secondary, more radical procedure.

Two mechanical sequelae of peptic ulcer, frequently, though not always, compel a resort to mechanical relief. Hour-glass stomach and pyloric obstruction are being diagnosed with greater frequency with the aid of the X-ray. There is usually no urgent reason for immediate operation and as the obstruction at the pylorus is on a spastic rather than a cicatricial basis in from twenty-two to ninety per cent of the cases thorough medical treatment should be given a full opportunity to relieve the condition before surgery is invoked. A twenty-four barium retention is considered as practically always an indication for operation. Failure to improve with three or four weeks of medical treatment is fair evidence of its uselessness. Tetany accompanying gastric retention and gastrectasia is a serious complication of obstruction and eventually necessitate intervention, but intervention delayed until all signs and laboratory evidence of the alkalosis has disappeared. Although the most excellent results of gastroenterostomy occur in these cicatricially stenosed cases the mortality from the operation is higher than in the general group of ulcer.

There are certain extragastric conditions which argue strongly for operation. Aside from their intrinsic importance, recur at attacks of appendicitis or even questionable chronic appendicitis as well as cholecystitis by maintaining a vicious lymphangitic drainage into the periduodenal and lesser curvature chain of nodes may keep alive an ulcer activity. Appendectomy alone often cures a reflex pylorospasm which may closely simulate peptic ulcer. Perigastric or periduode-

nal adhesions interfering with motility or causing pain from drag, may, through medical failure, cause surgical intervention.

A non-surgical inducement toward operative therapy, which, however, should be followed with caution, is the financial inability of many patients to make their livelihood and at the same time be burden with the details and often the entailed rest periods of dietary management. It should be remembered, however, that much harm may be done by placing too much stress on so unsurgical an indication.

Up to this point gastric and duodenal ulcer have been considered essentially the same process in spite of one obvious and a few minor variations, such as the greater tendency of duodenal ulcers to perforate. But in an examination of the uncomplicated status they must be treated separately, not because of the older, unfounded prejudice that gastric ulcer never healed, but because of the controversy over malignancy. Although duodenal cancer does occur and indeed is the most common of all small gut malignant tumors, its rarity is so pronounced that it is commonly considered nonexistent diagnostically. On the contrary gastric cancer is a relatively frequent and increasing disease and has since the days of Cruveilhier been linked up more or less intimately with the ulcer question. Cabot and Addie have charted the periodic reversal of opinion as to the pre-existence of ulcer in carcinoma of the stomach. The variations are maximal. Zenker maintained that all gastric carcinoma arose in a pre-existent ulcer and this theory has been adequately and frequently championed to at least the extent of seventy or eighty per cent by Wilson and MacCarty. Ewing and Kocher among others found the work of the above men largely subjective. Other pathologists find that cancer developing from ulcer is extremely rare, so that it has been said that the "percentage of frequency of carcinoma from ulcer varies from zero to one hundred per cent, according to the pathologist."

However, the more practical and immediately interesting problem of what "proportion of cases of chronic peptic ulcer of the stomach are likely to show malignant changes after a term of years," has at least a suggestive answer in the rarity with which cancer is known to supervene on a known ulcer following gastroenterostomy. Further, numerous series of clinically and roentgenologically proven gastric ulcer have now been treated medically with a sufficiently long follow-up period to warrant the assertion that if gastric ulcer does degenerate into cancer it does so with a frequency of probably less than two per cent. In spite of this reassuring view, the

statement of Finney that the figure of "ten or at the most fifteen per cent" is correct and the corroboration of the Mayo point of view by Broodgood, though without a statistical basis, makes one cautious. On the other hand, the low permanent cure percentage in gastric cancer is not alluring and added to that an inescapable operative mortality of from three to ten per cent in gastric surgery of sufficiently radical extent to eradicate an early cancer and a residue of surgical derelicts with postoperative complications make one lean toward the medical treatment of gastric along with duodenal ulcer, unless forced to exploration by persistent occult blood, falling acid, the presence of Opler-Boas bacilli, a change in the X-ray character of the lesion, progressive anemia, or loss of weight, strength or appetite. The presence of a "large penetrating lesion occurring in the middle aged is a clear cut indication for surgery because it is humanly impossible to differentiate the malignant from the non-malignant cases." In the present state of uncertainty anyone undertaking the medical treatment of gastric ulcer must do so with a consciousness of responsibility, a probationary period of close scrutiny and repeated X-ray examination and constant watchfulness. If there is any doubt, then, as to whether the lesion is benign ulcer or early cancer operation is strongly indicated.

Repeated recurrence of either gastric or duodenal ulcer varyingly placed at from four to eight is a flexible indication for operation as is unrelieved pain. As the best results of surgical therapy are obtained in long-standing ulcer, the poorest in ulcer with open pylorus, and as, on the contrary, the most brilliant results of medical treatment are found in the young patient with a fresh ulcer conservation is indicated. A probable permanent medical cure of sixty per cent or more is well worth trying for, and though the common surgical betterment percentage is above ninety the postoperative complications and operative mortality are to be avoided if reasonably possible.

#### BIBLIOGRAPHY

- Mann and Williamson, *Ann. Surg.*, 1923, lxxvii: 409.  
 Lewisohn, R., *Ann. Surg.*, 1923, lxxviii: 507.  
 Cabot and Addie, *Ann. Surg.*, 1925, lxxxii: 86.  
 Marcarty, A. J. *Med. Sci.*, 1927, clxxiii: 470.  
 Finney and Hanrahan, *Ann. Surg.*, 1929, xc: 908.  
 Wilkie, Br. M. J., 1929, T: 535.  
 Einhorn and Crohn, A. J. *Med. Sci.*, 1926, cixxii: 695.  
 Baeger, B., *Acto. Chr.*, 1929, lxi: 320.  
 Van Haberer, Zent. — *Chir.*, 1930, lvii: 66.

#### BOOK REVIEW

THE SURGICAL CLINICS OF NORTH AMERICA (Philadelphia Number—December 1930). The Surgical Clinics of North America. (Issued serially, one number every other month.) Volume 10, No. 6, Index Number—Philadelphia Number Dec. 1930). 316 pages with 95 illustrations. Per Clinic year (February, 1930 to December, 1930. Paper \$12.00; Cloth \$16.00. Philadelphia and London. W. B. Saunders Company, 1930.

The Surgical Clinics of North America bring you clinical instruction—postgraduate work with America's leading surgeons as instructions. In this new series the subscriber gets the clinical work of leading surgeons, operating and teaching at the large hospitals of America's principal surgical centers—Philadelphia, New York, Chicago, Boston, The Mayo Clinic, San Francisco, St. Louis, the South, and other surgical centers. The Clinics give you the experience of the country's great teacher surgeons, their methods and technic.

The December volume contains articles on hemorrhoids, encephalography, tumors of the posterior fossa, and intestinal tumors. There are also a number on pathologic fractures, fracture of the mandible, tarsal scaphoid and osteoarthritis.

ILLUSTRATED PRIMER ON FRACTURES—Prepared by the Co-operative Committee on Fractures, under the auspices of the Section on Surgery, General and Abdominal. The Section on Orthopedic Surgery.

In Co-operation with the Department of Scientific Exhibit of the American Medical Association. Published by the American Medical Association, 535 N. Dearborn Street, Chicago, Illinois. Price \$1.00.

The "Primer" is intended for use by both students and practitioners. It is not for the purpose of standardizing treatment, but to suggest what constitutes acceptable methods of treatment. It contains the material which found such favorable responses on the part of the visiting physicians at the Scientific Exhibit of the American Medical Association.

After each annual session of the American Medical Association there was received a large number of requests for the charts, both from physicians and teachers in colleges. It was deemed advisable, therefore, to reproduce under one cover all of the illustrations and in addition to incorporate appropriate legends. The legends were written by the members of the Co-operative Committee on Fractures: Drs. Allison, Darrach and Speed.

Interleaved it will be noticed, are pages for notes; these may be made use of by students whose teachers may care to amplify the ma-



terial presented or by practitioners who may care to supplement with their own comments.

**SURGICAL CLINICS OF NORTH AMERICA** (Pacific Coast Number). (Issued serially, one number every other month.) Volume 10, number 5. (Pacific Coast Number—October 1930.) 271 pages with 136 illustrations. Per Clinic year (February 1930 to December 1930.) Paper, \$12.00; Cloth, \$16.00. Philadelphia and London. W. B. Saunders Company.

The clinics in this number are from fellows of the Pacific Coast Surgical Association. The cases taken up are chiefly those of the unusual type. The more practical of the discussions are the following: Subclavian Aneurysm by Caldbick; Traumatic Rupture of the Urinary Bladder by Chidester and Prindle, and Fracture of the Spine by Taylor. The Clinic by Watkins on Prolapse of the uterus in Elderly Women is thorough.

**CLINICAL ALLERGY** — Particularly Asthma and Hay Fever; Mechanism and Treatment. By Francis M. Rackemann, M. D., Physician to the Massachusetts General Hospital; Instructor in Medicine, Harvard Medical School. Published by MacMillan Co., New York. Price \$10.50.

The modern conception that Hay Fever and Asthma are manifestations of a hypersensitiveness to some foreign subject has led to marked improvement in treatment. Drawing on his own wide experience and that of his co-workers, the author discusses modern methods of diagnosis and treatment which clinicians everywhere will welcome. Dr. Rackemann has combined the vast literature on this subject, and has correlated the observations of many skilled workers with his own findings.

**THE KAHN TEST. A PRACTICAL GUIDE**—By R. L. Kahn, Director of Laboratories, University of Michigan Hospital, Ann Arbor, Michigan. The Williams and Wilkins Company, Baltimore, Maryland, Publishers. Price \$4.00.

As the Kahn Test has been recently accepted by the League of Nations as the test for Syphilis, this new edition of Dr. Kahn's will be timely and a welcome adjunct to the physicians and laboratories library. This volume includes the detailed technic including discussion of apparatus, reagents, standardization of antigen, routine test and various procedures with serum and spinal fluids.

It is especially interesting to laboratory workers because it gives the technic in minute detail and to the physician because it teaches him the clinical interpretation of a laboratory method which is impossible without a general idea of the method.

## WOMAN'S AUXILIARY

### THREE CONTEST MESSAGES

#### A Race to Win

As the Auxiliary women all over Kentucky read of the contest, conceived and organized by our President, Mrs. E. B. Houston, and outlined in the January number of the Kentucky Medical Journal, for the promotion of the wonderful work already started by the women of our state, I am sure they are reminded of another contest which took place in far-away Greece hundreds of years ago.

Atalanta, a very beautiful Arcadian maiden, had been told by an oracle never to marry. Therefore she avoided the society of men and gave herself to the pleasures of the chase. She had many suitors, upon whom she imposed the following conditions: "I will be the prize of him who shall conquer me in the race; but death shall be the penalty of all who try and fail." Many youths attempted the race, but Atalanta outran them all until Hippomenes appeared. He was a favorite of Venus, whose aid he invoked. The goddess gave him three golden apples which he threw before Atalanta as she ran. Attracted by the apples she paused, turned aside and was thus overtaken by Hippomenes.

He won his prize—shall we win ours? True there are obstacles in each race which must be conquered; stumbling-blocks which must be converted into stepping-stones. The penalty for loosing is not as severe, but the anxiety to win is perhaps greater. It is at least more far-reaching, more engrossing, more beneficial to humanity. We must not only invoke the aid of those who can aid us in our project, but we must also devote ourselves wholeheartedly to the momentous cause before us.

Every county in Kentucky must do its bit, must give its co-operation and sincere support. I am sure that they will respond to the challenge given them and do their very best. Then when the race is over, we will all know that we helped Kentucky to stand triumphant—the deserving possessor of the intended trophy.

(Mrs. Geo. H.) MARY STALLINS RAY

#### County Auxiliary Contest

The County Auxiliary Contest sponsored by the Woman's Auxiliary to the Kentucky State Medical Association was planned so that you might measure your efforts and compare them with each of the other county organizations. It can only succeed as each individual contributes her share, and the pleasure and benefit to be derived from it will be in proportion to the interest and energy put into it.

The twelve points on which the score is based are fully explained in the January issue of the Kentucky Medical Journal. Read it now!!

Those who begin their work early, are going to have a big advantage, as the time is limited

and no allowance has been made for procrastination. Unless you begin the work immediately it will be impossible to score on many of the points.

To get new members is the first part of the contest. Their dues must be paid by July 1, 1931. There is no time for delay.

Twenty points are given for contributions to the Kentucky Medical Journal. There are only three more issues to which you might contribute for credit; June, July and August. Articles to appear in the June number must be in by May 1st, and sent to Mrs. A. T. McCormack, Brown Hotel, Louisville, Kentucky.

The parts of the contest scoring highest are ten and eleven, both of which are study courses, requiring much time and preparation. Nine lessons are required under part ten and four or more under part eleven. If you have not already started this work it is important that you begin at once.

We are putting particular stress upon these points at this time as they are the parts of the contest requiring the greatest amount of time.

Get busy now! Put your county organization to the front by making it winner in the contest.

(Mrs. J. L.) Marie Jones,

(Mrs. Harry) Martha Blythe Venable.

#### All For the Contest

The contest has become the topic of conversation when members of the Auxiliary meet. Everyone is pulling hard for their own Auxiliary to win. Even at an important committee meeting the business on hand is disposed of as quickly as possible in order to discuss plans for securing points in this contest.

In looking over the ways of securing points in the contest, one finds that each of the twelve parts are of such great value to our Auxiliary that not one can be overlooked. Of course, we want our membership one hundred per cent and we want Hygeia on the table in every doctor's office as well as in the home. We want to know the wonderful achievements of our doctors and to know more about the medical practice and superstitions concerning it. We can all spend some very pleasant moments looking over the Scrap Books. Then our contributions to the Kentucky Medical Journal, regular meetings and study classes are rich in points.

Think how proud everyone will be when they can look upon a worthy Memorial to that wonderful woman, Jane Todd Crawford and know that our efforts helped erect it.

Let us all who possibly can attend the Annual Meeting of the Woman's Auxiliary of the Kentucky Medical Association and secure 25 points for our Auxiliary. Let us all put our shoulders to the wheel and help win the prize in this contest for our own Auxiliary.

(Mrs. C. H.) Edna Krieger.

#### FOR THE JANE TODD CRAWFORD MEMORIAL

The Jefferson County Auxiliary is looking forward with a great deal of pleasure to the Silver Tea to be given by Mrs. George A. Hendon, our beautiful silvery-haired State President-Elect, at her home "Argyle" on the Taylorsville road. The date for the tea has been announced for Monday afternoon, May 18th, when those attending may enjoy the beautiful grounds which surround "Argyle." Another thing that makes the tea an event of interest, is the fact that the proceeds will be used toward the Jane Todd Crawford Fund.

#### CALLOWAY PRESENTS PROGRAM

The Mothers Club of the Training School, Murray State Teachers College enjoyed a most interesting and profitable program given Friday afternoon, March 6, by the Woman's Auxiliary to the Calloway County Medical Society.

The meeting opened with Mrs. H. B. Bailey, vice-president of the Mothers Club, presiding. After a short business session the meeting was turned over to Mrs. E. B. Houston, President of the Auxiliary of the County Medical Society and also State President of the organization. The auxiliary's course of nine lessons was presented in resume by doctors' wives and sisters. These lessons cover the following subjects: No. 1. State Board of Health. No. 2. The Bureaus of the State Board of Health. No. 3. County Board of Health. No. 4. Vital Statistics. No. 5. Food Establishments. No. 6. Milk. No. 7. Venereal Diseases. No. 8. Tuberculosis. No. 9. Requirements to Practice Medicine. The following persons appeared on program, Mrs. Rob Mason, president of the Mothers Club; Mrs. Solan Higgins, Mrs. A. J. Outland, Mrs. W. H. Graves, Mrs. B. B. Keys, Mrs. E. B. Houston, Dr. A. J. Outland, County Health Officer and Miss Mabel Glasgow, County Health Nurse. Dr. Outland and Miss Glasgow related their progress as a County Health Unit in connection with the lessons presented.

The forty-five persons present declared that the afternoon had been spent in a most enjoyable and profitable way. Included in the number present were Mr. J. W. Compton, principal of the Training School; Miss Mary Gabbert, Miss Mattie Trousdale, Miss Ola Brock, Miss Lottye Suiter, Miss Naomi Maple and Miss Emma J. Helm, teachers in the Training School. Forty copies of Hygeia, health magazine, were distributed.

A social half hour followed the program, during which the Auxiliary served plates of ice cream and delicious angel-food cake, baked by Miss Lucile Pollard. Shamrock napkins and favors were used. Doctors' daughters serving were little Miss Marylyn Mason, Miss Winnifred Keys, Miss Mildred Graves and Miss Elizabeth



Covington. Assisting with the serving were Mrs. R. M. Pollard, Mrs. Henry Gatlin and Mrs. Dee Houston.

### PERRY COUNTY ELECTS OFFICERS

The Woman's Auxiliary, Perry County Medical Society met at the home of Mrs. J. C. Coldiron, Hazard, February, 5th, Mrs. R. L. Collins, First Vice-President, presiding in the absence of the President, Mrs. G. B. Wheeler, who has moved to Lexington. The following officers were elected for the ensuing year: President, Mrs. A. M. Gross; First Vice-President, Mrs. J. C. Coldiron; Second Vice-President, Mrs. S. B. Snyder; Secretary and Treasurer, Mrs. J. E. Hagan.

The first four lessons of the Study Course in Kentucky Medical and Health Laws were reviewed by Mrs. R. L. Goad.

The next meeting will be held April 9th at the home of Mrs. R. L. Collins when the new officers will be installed with fitting ceremony, including the Caduceus March originated by the Perry County Auxiliary. Mrs. R. L. Collins will conduct the ceremonies assisted by her daughter, Miss Dorothy, as her Herald.

### PROGRAM OF NINTH ANNUAL MEETING WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

Philadelphia, June 8-12, 1931

Headquarters, Bellevue-Stratford Roof Garden

Registration Hours, daily 9 A. M. to 5 P. M.

All meetings will begin precisely at the hour indicated. Please be prompt.

All women attending the Convention, whether Auxiliary members or not, are invited to participate in this entire program.

#### Monday, June 8

12:30 P. M. In honor of National Presidents, 1922-1932. Buffet Luncheon, Subscription—Roof Garden.

2:00 P. M. Three Round Tables, 35 minutes each, 10 minutes intermissions—Roof Garden.

#### Subjects

1. Programs for County Auxiliary Meetings.
2. The Technique and Value of a Committee on Public Relations.
3. History and Archives.

6:30 P. M. Board Dinner, subscription—Red Room.

7:30 P. M. Board Meeting—Red Room.

#### Tuesday, June 9

9:00 A. M. General Meeting—Roof Garden.

12:30 P. M. Luncheon (Bellevue Special)—Roof Garden.

1:30 P. M. \*Bus Trip to Valley Forge.

Tea in Log Cabin.

Hostesses, Berks, Chester, Delaware and Montgomery Co., Pa., Auxiliaries.

or

1:30 P. M. \*Boat Trip on Delaware River. Tea on Board. Hostesses, Bucks Co., Pa. Burlington, Camden and Gloucester Co., N. J., Auxiliaries.

or

2:00 P. M. Visit to Historical Society of Pennsylvania, 1300 Locust Street.

#### Special Docent Service

Brief address by Dr. Charles W. Burr of Philadelphia: "The Daily Life of the Colonial Physician."

Special Exhibitions on View throughout the Convention.

8:00 P. M. General Meeting of A. M. A.—Academy of Music.

10:00 P. M. Supper Dance—Bellevue Ball Room. Hosts, The Philadelphia County Medical Society.

#### Wednesday, June 10

9:00 A. M. General Meeting and Election—Roof Garden.

12:30 P. M. Auxiliary Luncheon, subscription—Rose Garden. Guests and Speakers from A. M. A. Music by courtesy of the Delaware State Auxiliary.

2:30 P. M. Bus Trip through Historic Philadelphia, Fairmount Park and Germantown. Hosts, The Philadelphia County Medical Society. Tea at "Stenton" Hostesses, New Jersey State Auxiliary.

8:30-11 P. M. Auxiliary Reception—University Museum. Hostesses, Pennsylvania State Auxiliary. Music. Special Docent Service.

#### Thursday, June 11

9:30 A. M. Board Meeting—Red Room.

10:00 A. M. Meeting for All State and County Treasurers—Roof Garden.

10:30 A. M. General Round Table—Roof Garden. Subject: "What Have I Gotten Out of the Convention?" Opening of Question and Suggestion Box.

12:00 M. Luncheon (Bellevue Special)—Roof Garden.

1:00 P. M. \*Bus trip, "Longwood" Estate of Mr. and Mrs. Pierre S. duPont.

or

2:30 P. M. \*Visit to Fairmont and Rodin Museums. Special Docent Service.

9:00 P. M. President's Ball—Benjamin Franklin Ball Room. Hosts, American Medical Association.

#### Friday, June 12

9:30 A. M. \*Bus Trip to Atlantic City, including Visit to Convention Hall, Ride in Wheel Chair (1 hour). Luncheon at the Claridge. Atlantic City Auxiliary in charge. Return at 5 P. M. or 10 P. M.

or

11:00 A. M. Trip through Wanamaker's with Luncheon in Crystal Tea Room.

\*Bus transportation paid by members.

†Inclusive price \$5.00.

**"As You Like It"**

Daily from 9 A. M. to 5 P. M. arrangements may be made at this Booth in the Roof Garden for golf, shopping, or any special trips desired, e. g. Historic Churches, Fairmount Park Mansions, Suburban Gardens, etc.

All tickets and invitations must be procured in advance in the Bellevue Roof Garden. Only programs will be obtainable elsewhere.

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**REASONS WHY MEMBERS OF THE WOMAN'S AUXILIARY SHOULD STUDY KENTUCKY'S HEALTH LAWS**

First, pride would itself demand that we women of Kentucky should be informed as to the health laws of our own state. Such pride is fully justified for the health laws of Kentucky compare favorably with all similar codes. Further, in their administration through our State Board of Health, a non-political organization of remarkable personnel, we rank second to none. All Kentucky women should acquaint themselves with these laws and it certainly behooves us, who are members of the Medical Auxiliary, to have an accurate and intimate knowledge of them. We cannot expect to inform others until we ourselves are thoroughly informed.

Second, having such a study course concerning our health laws and becoming thoroughly acquainted with the various divisions we will be in a position to furnish that information to all who may seek it. Many club women are arranging health programs for their organizations and we would then be enabled to render them valuable assistance both in planning their programs and producing material for them. Then too, knowing the requirements of our state laws we will be much better able to cooperate in their enforcement and will be interested in observing and reporting instances of non-observance.

No doubt many of us upon the arrival of our study outlines have hurriedly glanced over them, perhaps even reading far enough to realize what a truly splendid plan it was, then have laid it carefully away in our desk drawer with a firm resolve to some day sit down and study it through. I would venture to say that not one woman in fifty has ever yet found that convenient season. Yet, if a study course be arranged and a definite time set for it we will wonder why we have so long postponed that day, so great will be our interest in it. Many points which might have seemed obscure to us if we had read them alone, as the result of the class discussion, will seem quite simple

and by this friendly discussion our whole group is brought together into a happy social unit. We will find ourselves better acquainted with one another after such a meeting than after a dozen more formal auxiliary meetings.

In planning such a course it probably will be well to keep in mind a few important points such as the following:

1. Much depends upon your leader. She must be a leader of P. E. P.: PERSONALITY, ENTHUSIASM, PERSEVERANCE.

2. Begin promptly and end just as promptly.

3. Have a definite time, schedule and discussion outline for each meeting.

4. Let it be a real discussion class for your group will learn more by participation than by any lecture, no matter how carefully prepared and how excellently given. The leader should act merely as the guide to this discussion seeing that too much time is not given to minor points but that major measures are recognized as major.

5. If possible decide beforehand, after careful planning, how many lessons will be necessary. Then by careful forward looking program building, see that all important matters are covered in those periods.

**BY THE SUB-COMMITTEE ON MEDICAL HEALTH LAWS OF THE COMMITTEE ON PUBLIC INSTRUCTION.**

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**NEWS ITEMS**

Dr. Frank A. Simon announces the opening of an office for the practice of medicine at 444-452 Francis Building, Louisville, Ky.

Dr. David L. Hill announces the removal of his offices to suite 819-821 Brown Building, Louisville. Office hours: 11 to 1 p. m., 3 to 5 p. m. and by appointment. Phone: Office, City 18; Residence, Mag. 8500.

Dr. R. Hayes Davis desires to announce that Dr. Hill and he have terminated their association. Dr. Davis will remove to suite No. 510 Heyburn Building, corner Fourth and Broadway, Louisville, Ky., on April 1. Practice of internal medicine and diagnosis. X-ray; Clinical Laboratory; Electrocardiography; Basal Metabolism.

Dr. Thomas J. Crice, wishes to announce the opening of his offices, 1010 Brown Building, Louisville. Office hours 2:00 to 4:00 P. M. Phone, City 1213.



# Kentucky Medical Journal

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Incorporated

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NEXT MEETING LEXINGTON, SEPTEMBER 7-10.

## COUNTY SOCIETY REPORTS

Jefferson: The May program of the Jefferson County Medical Society will be as follows:

## May 4th—Case Report

Diaphragmatic Hernia—K. Armand Fischer, M. D.

## Essay

Some Basis Principles Necessary to Success in Plastic Surgery; Presentation of Clinical Cases—Fred L. Koontz, M. D. General discussion.

## May 18th—Case Report

A Case of Gynatresia—Wm. Edgar Fallis, M. D.

## Symposium on Latent Syphilis

1. The Lesions of Latent Syphilis; Lantern Slides—A. J. Miller, M. D.

2. The Diagnosis of Latent Syphilis—C. Brooks Willmott, M. D.

3. The Treatment of Latent Syphilis—Chas. E. Gaupin, M. D.

Discussion to be opened by E. R. Palmer, M. D. and B. F. Zimmerman, M. D.

J. D. ALLEN, President;

J. C. BELL, Secretary.

Graves: The Graves County Medical Society met at Hall Hotel Tuesday morning, March 24, 1931.

Dr. W. J. Shelton read a paper on Pneumonia, which was discussed fully by the doctors. This was a very enjoyable meeting, twenty-two doctors being present. After collecting the yearly dues, the meeting adjourned to meet the latter part of April.

The officers for the year 1931 are as follows: J. T. Fuller, Mayfield, president; J. H. Shelton, Mayfield, vice-president; H. H. Hunt, Mayfield, secretary-treasurer, and H. H. Hunt, Mayfield, delegate; L. L. Wrigat, Boaz, alternate; W. E. Merrit, Fancy Farm, alternate.

H. H. HUNT, Secretary.

Harlan: The Harlan County Medical Society met March 28th for its regular March meeting in the Christian church. Dr. Malcolm Thompson of Louisville read a very interesting and instructive paper on "Cancer of the Cervix. The discussion was opened by Drs. E. M. Howard and Clark Bailey. Dr. R. P. Ball of Harlan also presented two very interesting case reports on "Lesions of the Duodenum." The society accepted with regret the resignation of Dr. Alfreda Withington as a member, and adopted a resolution of appreciation for the great work done by Dr. Withington at the Pine Mountain Settlement school in Harlan County. The members present were: Drs. Bailey, Miller, Riley, Cawood, E. M. Howard, Aiken, Jenkins, Petty, Riddell, Linden, Parks, Ball, Starks, N. S. Howard, Rowland, Nolen and Dr. Thompson of Louisville.

M. M. RIDDELL, Secretary.

**Southwestern:** Southwestern Kentucky Medical Society will meet in Paducah May 12, with the president, Dr. W. F. Peebles, Clinton, presiding. The following program has been arranged:

Dr. E. B. Willingham—Heartblock. Discussed by Drs. H. P. Linn and Phillips of Kuttawa.

Dr. Warren Sights—Pitfalls in Intra-Abdominal Diagnosis. Discussed by Drs. Will Mason and Frank Boyd.

Dr. George Payne—Pernicious Anemia. Discussed by Drs. Allen Shemwell and E. B. Houston.

Dr. Burrows—A Paper, the General Practitioner. Discussed by Drs. Washburn, Benton, Ky., and Cash, Princeton.

Dr. Walters—Stomach Troubles. Discussed by Drs. Vernon Pace and James Fuller.

Dr. Jones—Puerperal Eclampsia. Discussed by Drs. E. A. Stevens and Joe Acree.

A banquet in the evening, followed by a discussion on "The General Use of X-ray," by Dr. D. Y. Keith, Louisville.

Every physician in the southwestern part of the state is cordially invited to attend.

T. J. MARSHALL, Secretary.

**Franklin:** The Franklin County Medical Society met at 12 o'clock noon in the writing room of the Capital Hotel on Thursday, April 2, 1931. Dr. Demaree, the president, and the vice-president being absent, Dr. G. A. Budd officiated and called the meeting to order. Minutes of the March meeting were read and approved.

Members present were: Drs. Ginn, Minish, Travis, Coleman, Patterson, Budd and Youmans. The meeting was devoted to discussion of clinical cases. Several very interesting cases were reported by Drs. Minish, Travis, Coleman, Patterson and Budd.

No other business, the meeting adjourned to the hotel dining room for lunch.

C. E. YOUMANS, Secretary.

**Bourbon:** The Bourbon County Medical Society held its regular meeting on Thursday, March 26, at 7:30 p. m. The meeting was held in the courthouse in Paris, with the following members present:

Drs. J. A. Orr, W. C. Ussery, H. A. Miller, J. C. Hart, H. M. Boxley, C. G. Daugherty, William Kenney, J. T. Van Zant and the Secretary. Visitors: Drs. W. H. McLean and B. N. Pittinger.

Dr. W. H. McLean, Lexington, read a paper on "Acute Diseases Within the Abdomen." This was an interesting paper dealing with Appendicitis, Cholecystitis, Perforating Peptic Ulcers, Intestinal Obstruction and other conditions and discussing mostly diagnosis and treatment.

The discussion was opened by Dr. Ussery, followed by Drs. Boxley, Daugherty and Orr. The

discussion was closed by the essayist.

Dr. J. C. Hart read a Journal article on "Abruptio Placenta." Discussed by Drs. Miller, McLean, Kenney, Daugherty and Orr.

M. J. STERN, Secretary.

**Caldwell:** The Caldwell County Medical Society met in the office of the retiring president, Dr. W. C. Haydon, and elected the following officers for the ensuing year: Dr. W. P. Moore, president; Dr. J. M. Moore, vice-president; Dr. W. L. Cash, secretary, re-elected; Dr. J. B. Wadlington, delegate to State Association; Dr. I. Z. Barber, alternate; Dr. F. T. Linton, censor. Program committee consisted of the following: Drs. Haydon, Linton and Cash.

W. L. CASH, Secretary.

**Ballard:** Dr. J. C. Sullivan, a member of our profession, passed from this life Monday evening, March 16, 1931, about 8 o'clock.

He was both learned in the science of medicine and skilled in the treatment of diseases. He received his technical training in some of our best institutions, and that connected with his extensive practice and knowledge of the characteristics of the human family enabled him to attain a high standing in this his chosen profession.

He had for many years been identified with the Kentucky State Medical Association and the Ballard County Medical Association and was a member of each at the time of his death. These associations, the profession in general, as well as the general public realize that in his passing a great loss has been sustained.

Therefore be it resolved by the Kentucky State Medical Association and the Ballard County Medical Association, in joint resolution adopted that:—

Each of said associations acknowledge thus publicly the high esteem with which he was held, and our deep appreciation of his sterling worth as a fellow practitioner. Though learned in his chosen profession, he was unassuming and ethical to a fault. He was always ready to accept suggestions and to co-operate to the end that the most good might be accomplished for the masses whom he served.

That a copy of these resolutions be published in the Kentucky Medical Journal, a copy be published in the Ballard Yeoman and a copy be furnished to his family, with whom we are in sincere and profound sympathy.

In testimony whereof, we, the committee, have hereunto set our signatures this March 18th, 1931.

F. H. RUSSELL,  
W. A. PAGE,  
Committee.





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# KENTUCKY MEDICAL JOURNAL



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VOL. 29. No. 6

BOWLING GREEN, KY.,

JUNE, 1931

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# KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

VOL. 29 No. 6

BOWLING GREEN, KY.,

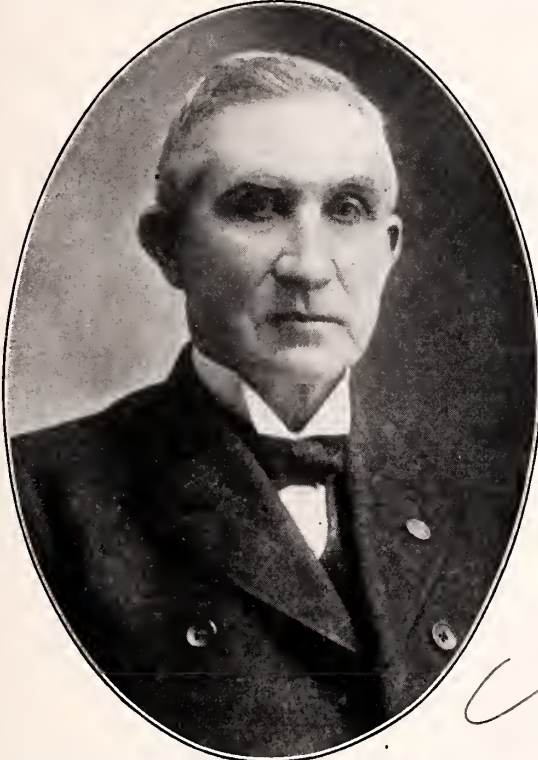
JUNE 1931

## EDITORIALS

### DR. JAMES STEELE BAILEY

At the age of eight-nine Dr. James Steele Bailey died in Mammoth, Utah.

Dr. Bailey's life in Kentucky occupies a



James STEELE BAILEY, M. D.  
President 1904

Secretary 1886-1903

KENTUCKY STATE MEDICAL ASSOCIATION

brilliant page in its medical history. He was Secretary of the State Medical Association for nineteen years and was elevated to the Presidency during his final year of official service. During this length of time he was the life of the Association. The period of his great activity was just before the effective reorganization of the American Medical and State Medical Associations and the membership was small, but under Dr. Bailey's guidance the programs were full of interest. He was a scintillating speaker. The fine humor of a great soul shone through his expressive countenance and his culture and erudition had provided him with a wealth of material

that enabled him to always make his addresses full of interest. He loved medicine and probably no man who ever lived in Kentucky had more friends in the profession. It was a great privilege to have known and served with him.

### AMERICAN MEDICAL GOLFING ASSOCIATION TOURNAMENT PHILADELPHIA, JUNE 8, 1931

The Seventeenth Annual Tournament of the American Medical Golfing Association will be held in Philadelphia, Monday, June 8th, at the Aronimink Golf Club instead of the Huntingdon Valley Country Club, as announced in the Brochure of the Association which was recently mailed to members. The Aronimink Golf Club is modern; the course is in splendid condition and is interesting and sporty. The Local Committee is doing everything possible to make the tournament a great success. The Philadelphia men composing the Local Committee on Arrangements are Dr. John W. Croskey, Chairman; Dr. Willis F. Manges, Dr. Fred H. Leavitt, Dr. Frank J. Kelly, and Dr. Damon B. Pfeiffer.

Membership in the American Medical Golfing Association is open to any male Fellow of the American Medical Association in good standing. It is hoped that many of the medical golfers throughout this State will join the Association this year and take part in the Philadelphia tournament. There will be many attractive and valuable prizes awarded at the Annual Dinner, to be held on the evening of the day of the tournament at the Club House. For any additional information, communicate with any member of the Local Committee, or with the Executive Office, 1124 Maccabees Bldg., Detroit, Mich.

### THE AMERICAN PROCTOLOGICAL SOCIETY

This society was organized in 1899 for the purpose of investigating and disseminating knowledge relating to the rectum, anus, and colon, and is a society with a definitely limited membership. This year the annual meeting will be held in Philadelphia, Sunday, Monday and Tuesday, June 7, 8, 9, with headquarters in the Bellevue-Stratford Hotel. Doctors Collier, Martin and W. O. Hermance of Philadelphia will have charge of all ar-

rangements. Only regular practitioners, members of the A. M. A. and not affiliated with medical groups admitting those not members of the A. M. A., are cordially invited to attend these scientific sessions. Mr. J. P. Lockhart Mummery, of London, Chief Surgeon of St. Marks Hospital, will deliver a series of addresses. The ladies will have a full entertainment program and are welcomed. For additional information, write to Curtice Rosser, M. D., Medical Arts Bldg., Dallas, Texas.

### AMERICAN MEDICAL ASSOCIATION

Account of the above occasion the L. & N. railroad will offer tickets on the Certificate Plan on the fare and one-half basis. With railroad tickets sold at the one-way fare of \$28.08. June 4th to 10th, inclusive, a Certificate will be issued. This Certificate is to be signed by you and handed the Secretary of the meeting immediately upon arrival at the convention and, provided there are 150 or more delegates in attendance from all points, they will be validated from June 8th to 12th by your Secretary and a railroad representative, and honored for return at one-half fare, or \$14.04, up to and including June 16th. On this basis the round-trip rate will be \$42.12.

Special round-trip thirty day limit tickets will be on sale Saturday, June 6th, at the following rates from Louisville:

New York, \$46.98. Philadelphia, \$42.12. Atlantic City, \$45.12. The Pullman costs are as follows: Lower berth, \$8.25. Upper berth, \$6.60. Compartment, \$23.25. Drawing room, \$30.00.

Excellent train service in each direction has been arranged as follows:

Leave Louisville 7:25 A. M.-a; 11:25 A. M.-b 1:05 P. M.-c; 5:05 P. M.

Arrive Cincinnati 11:55 A. M.; 3:50 P. M. 5:40 P. M.; 9:30 P. M.

Leave Cincinnati 1:10 P. M.; 4:20 P. M. 6:02 P. M. 10:50 P. M.

Arrive Philadelphia 6:32 A. M.; 7:34 A. M. 10:09 A. M.; 5:02 P. M.

Leave Philadelphia 4:15 P. M.-d; 5:40 P. M.-e; 11:17 A. M.

Arrive Cincinnati 7:45 A. M.; 8:55 A. M.; 5:55 P. M.

Leave Cincinnati 8:00 A. M.; 9:15 A. M.; 7:15 P. M.

Arrive Louisville 10:45 A. M.; 11:45 A. M. 9:42 P. M.

a—Extra fare charge from Cincinnati to Philadelphia is \$1.20.

b—Extra fare charge from Cincinnati to Philadelphia is \$3.60.

c—Extra fare charge from Cincinnati to Philadelphia is \$2.40.

d—Extra fare charge from Philadelphia to Cincinnati is \$3.60.

e—Extra fare charge from Philadelphia to Cincinnati is \$3.60.

If you expect to attend, write to Dr. L. H. South, Chairman or consult your local ticket office.

### THE LEXINGTON MEETING

Our readers are naturally interested in the arrangements for the meeting which will be held at the University of Kentucky, in Lexington, September 7th to 10th, inclusive. Many of them will be receiving letters from Dr. Kavanaugh, who is preparing the program. Dr. Kavanaugh has provided for a series of splendid case reports during the first hour of each session, which will add a great deal to the scientific interest of the meeting.

Members desiring reservations for themselves and families should write to Dr. L. C. Redmon, at Lexington, stating just what they want. Those who desire to repeat the pleasant experiences of the Richmond and Bowling Green meetings and live in the dormitories of the State University may reserve rooms there, and those who prefer hotel accommodation can ask for them either at the Phoenix or LaFayette, two of the best hotels in the state. The cafeteria at the University is on the third floor of the McVey Building and will provide excellent meals at very reasonable cost.

In addition to the usual scientific program and commercial and scientific exhibits, this session will afford the profession of the state an opportunity to see the great plant which the University of Kentucky is developing and it will enable us to support President McVey's splendid program more intelligently.

The medical profession of Kentucky recalls with great pleasure the splendid meetings which have heretofore been held in Lexington and we feel confident that a larger attendance at this session will indicate to Dr. Redmon, Chairman of the Committee on Arrangements, and his associates, our appreciation of the fine hospitality which they are extending to us.

The next issue of the JOURNAL will contain the preliminary program and other items of interest regarding the meeting.



## FACULTY AND PROGRAM FOR THE SUMMER SCHOOL

The following will compose the faculty of the summer school, which will be held June 1st, to 12th, at the City Hospital under the auspices of the Kentucky State Medical Association and the Medical Department of the University of Louisville:

H. V. Noland	R. H. Davis	Edward Speidel	J. M. Kinsman
G. S. Hanes	M. H. Pulskamp	W. T. McConnell	J. H. Long
V. E. Simpson	Wallace Frank	S. H. Starr	A. L. Bass
R. Glen Spurling	G. S. Dabney	Alice Pickett	Morris Flexner
Guy Aud	L. H. South	W. I. Hume	Walter Dean
Irvin Abell	O. O. Miller	W. O. Johnson	G. E. Vaughan
Louis Frank	J. R. Wathen	A. J. Miller	O. R. Miller
J. J. Moren	B. F. Zimmerman	Paul Turner	S. W. Weinberg
Philip Barbour	Bernard Asman	J. W. Bruce	J. H. Pritchett
J. Paul Keith	J. W. Moore	C. J. Armstrong	S. C. McCoy
Owsley Grant	Frank Strickler	E. F. Horine	W. E. Applehaus
J. D. Trawick	C. T. Wolfe	W. E. Gardner	S. I. Johnson
J. A. Bowen	W. B. Owen	S. C. Frankel	W. J. Young
T. Cook Smith	G. A. Hendon	F. J. O'Brien	L. D. Jones
J. R. Stites	C. G. Lucas	J. G. Sherrill	F. L. Fletcher

## FIRST WEEK, JUNE 1-6

TIME	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8:00 to 9:00 A. M.	SURGERY AT VARIOUS HOSPITALS					
9:00 to 10:00 A. M.	Noland	Miller Horine	Noland	Miller Lungs	Hanes Rectum	STATE BOARD OF HEALTH DEMON- STRATION  Sixth and Main
10:00 to 11:00- A. M.	Laboratory	Physical Diagnosis	Laboratory	Horine Heart	Wathen Colon	
11:00 to 12:00 A. M.	Wathen Goitre  Gardner Nervous Diseases	Simpson Diabetes  Zimmerman Facial Neuralgia	Frankel Pneumonia  Asman Rectum	Spurling Brain  Tumor O'Brien Psychiatry	Simpson Diabetes  Aud Oesophagus	
12:00 to 1:00 P. M.	Moore  Ward Rounds	Sherrill  Surgery of Stomach	Abell Gal' Badder  Liver and Pancreas	Kinsman Medicine  Strickler Varicose Veins	L. Frank  Cancer	
1:00 to 2:00 P. M.	LUNCH					
2:00 to 3:00 P. M.	Wolfe  Clinic and Lecture on Eye	Long  Anesthesia	Owen  Orthopedics	Noland Kidney  Bass Sinus Disease	Horine  Hyperten- sion	Leisure
3:00 to 4:00 P. M.		Moren Epilepsy	Gardner Confusional States	Moren Nervous Clinic	Barbour Pediatrie Clinic	
4:00 to 5:00 P. M.	Hendon Venoclysis	Flexner Meningitis	Hendon Fractures	Keith Radium	Lucas Stomach	

## SECOND WEEK, JUNE 8-12

TIME	Monday	Tuesday	Wednesday	Thursday	Friday
8:00 to 9:00 A. M.	SURGICAL CLINICS AT VARIOUS HOSPITALS				
9:00 to 10:00 A. M.	Dean Nose and Throat	Vaughan Nose and Throat	ALL DAY TRIP TO WAVERLY HILLS SANATO- RIUM AND LUNCH	Miller Orthopedics	Weinberg Nose and Throat
	Grant G. U. Clinic	Trawick Orthopedics		Bowen G. U.	Smith Pediatrics
	Speidel Obstetrics	McConnell Obstetrics		Applehaus Rectum	Pickett Obstetrics
				Starr Obsterics	
10:00 to 11:00 A. M.	Grant G. U.	Stites G. U.	SANATO- RIUM AND LUNCH	McCoy G. U.	
	Pritchett Pediatrics	Hume Focal Infection		Davis Reducing Diet	Pulskamp Rectum
		Smith Pediatrics		Applehaus Rectal	Pritchett Pediatrics
11:00 to 12:00 A. M.	Miller Pathology	Stites G. U.	SANATO- RIUM AND LUNCH	Miller Pathology	Pulskamp Rectum
	Grant G. U.	Keith X-Ray		McCoy G. U.	Johnson X-Ray
				Applehaus Rectum	
12:00 to 1:00 P. M.	Frankel Pneumonia	W. Frank	SANATO- RIUM AND LUNCH	W. Frank	Turner
	Strickler Blood Transfusion	Surgery of Intestine		Surgery of Intestine	Periodic Examination
1:00 to 2:00 P. M.	LUNCH		SANATO- RIUM AND LUNCH	LUNCH	
2:00 to 3:00 P. M.	Young Skin G. U.	Pickett Operative Obstetrics		CLINICS	Dabney Nose and Throat
	Rectal	Skin G. U.		Salvarsan Rectal	G. U.
	Obstetrical Clinics	Rectal		Obstetrics	Rectal
3:00 to 4:00 P. M.	CLINICS	Stites	SANATO- RIUM AND LUNCH	Bowen G. U.	Barbour
	Eye G. U.	Applehaus		Pulskamp	Delivery of
	Rectal			Rectum	Certificates
4:00 to 5:00 P. M.	Bruce Infant Feeding	Bruce Infant Feeding	SANATO- RIUM AND LUNCH	Barbour	
				Pediatrics	

Dispensary Clinics

10:00-12:00 Surgery

Armstrong Medicine

Noland Pediatrics

Fletcher Gynecology

W. O. Johnson Neurology

2:00-3:00 Obstetrics

Star Genito Urinary

Grant Proctology

Dermatology

Mon. &amp; Wed. Orthopedics

Mon. &amp; Thur. Eye

Tues. &amp; Fri. Ear, Nose and Throat

Leisure



## SCIENTIFIC EDITORIAL

## THE ETIOLOGY OF CANCER

I was very much interested in an article that appeared in the February 8, 1930 number of the Journal of the American Medical Association, wherein were enumerated twenty skin diseases that were precursors of cancer.

In all of these there was a break in the normal continuity of the skin.

This set me to thinking.

We have had various theories as to the causative factor in carcinoma from the old Cohnheim Theory of Embryonic remains down through numerous surmises to the germ theory. None have been proved to be the one, to the general satisfaction of the investigators.

We have the so-called cancer-cell, and we have the modified types resulting from the initial lesion, these modifications depending upon the site of the so-called metastases.

We know, at least we think we know, that certain cases of cancer get well, leading us to think that the diagnosis was in error.

We know that the disease seems to be present at certain periods of the span of life.

We know that we have invented the phrase of diminished vital resistance to account for the inception of the disease.

We know that in all probability the protective coverings of the body and the lining membranes of the various cavities, large and small, especially at certain points liable to the greatest irritation, are the points most prone to the initial lesion.

We know that cancer is widely scattered being found in other members of the animal kingdom, as cattle, horses, dogs, cats, birds, fish, mollusks, and reptiles.

And yet the actual germ as such has not been officially recognized.

We know that as a result of glandular activity, the human body progresses from the original union of two cells up through the foetal state to the new born and then the embryonic cells give rise to what we consider the normal growth of the individual.

Cohnheims Theory of Embryonic remains, springing to renewed activity, may be the most valuable of any of the theories; but how can we explain this renewal of activity?

A wart, innocent enough for years, may be the home of the future cancer. Here we may have a break of the normal dermal continuity. No distinctive germs have been found to explain the diverse forms of cancer.

So far I have not found any research work as to just what part the different types of fungi or moulds that may generate poisons that being absorbed, serve to still further break down the vital resistance.

It may be possible that this research work has been carried on. If so, I believe that it might be very profitable to the profession to be so informed.

If fungi or moulds should be the cause, it can be readily seen from their destructive effects on plants, that they may play a similar role in the production of certain types of cancer, if they are not responsible for all.

CHAS. W. REYNOLDS, M. D.

## ORIGINAL ARTICLES

REPORT OF THE OBSTETRICAL SERVICE OF THE LOUISVILLE CITY HOSPITAL FOR THE YEAR JULY 1, 1929 to JULY 1, 1930\*

S. H. STARR, M. D.

Louisville.

This report is a review of the cases admitted to the Obstetrical Wards of the Louisville City Hospital from July 1, 1929 to July 1, 1930 and the cases delivered in the home during the same time by the City Hospital Personnel.

Summary of Deliveries and Admissions

Deliveries	Total	Clinic				Non-Clinic	
		White	Colored	White	Colored	White	Colored
Indoor	782	240	339	129	74		
Outdoor	481	157	147	128	49		
Primipara	408	124	180	67	37		
Multipara	855	266	308	192	89		
Total Admissions	1486	470	558	308	152		
Total Deliveries	1263						

In all there was a total of 1486 admissions with 1263 deliveries. The difference in the number is due to the fact that some patients were admitted and then discharged to return later for delivery while some cases were sent in merely for postpartum care. Of the 1263 deliveries, 883 or 70% attended the prenatal clinic while 380 or 30% had no medical attention until labor. Almost twice as many delivered in the hospitals as at home—782 occurring in the hospital and 481 at home. There were 408 primipara and 855 multipara. 75% of the primipara attended the clinic while 67% of the multipara had prenatal care. There were 654 white deliveries and 609 colored.

MATERNAL DEATHS

There were seven maternal deaths, the causes of which were meningitis, pyelonephrosis, hyperemesis gravidarum, peritonitis and septicemia, septicemia with general pelvic infection, eclampsia, peritonitis following ruptured uterus.

The case of meningitis gave a history of otitis media with a myringotomy done two

\*Read before the Surgical Section of the Kentucky State Medical Association at Bowling Green, Sept. 15-18, 1930.

weeks previously. The delivery was a premature precipitate weighing 2½ pounds. The spinal fluid was purulent and under increased pressure. The smear showed gram positive organisms. The patient died the day following delivery.

The second case, at autopsy showed pyelonephrosis and endometritis with septicemia—the latter possibly being a terminal condition. The patient was admitted to the hospital November 19. She was six months pregnant and semi-comatose. While in the hospital, non-protein nitrogen of the blood varied from 57 to 98.6 mg. per 100 cc., blood urea, 26 to 44, creatinin, 3.4 to 4. The blood sugar on admission was 333 mg. per 100 cc. but dropped to 166 gradually under a treatment of glucose and insulin. Wassermann was four plus and the patient had had two intravenous neosalvarsan administrations, the last injection two weeks before the onset of symptoms.

The case of hyperemesis was very interesting. The patient gave a history of having severe vomiting with two other pregnancies, one which went to term and the other which terminated in an abortion. The patient was admitted January 22. She appeared to be in good physical condition on admission and vomited only after eating. On January 23, she received 500 cc's of 20% glucose intravenously. About 10 a. m. January 24, patient went into shock and became cyanotic. Her pulse rose from 80 to 150. There was some tenderness in right lower quadrant and slight vaginal bleeding. A provisional diagnosis of ruptured ectopic pregnancy was made and a laparotomy was done with novocain and nitrous oxide. This revealed a two months intra-uterine pregnancy. The patient died soon after. The autopsy revealed the typical liver of hyperemesis with toxic splenitis, toxic nephritis, congestion of lungs and parenchymatous degeneration of the heart and pancreas.

The case of eclampsia was a patient who had had no prenatal care. She was a home delivery and refused hospitalization until after convulsions occurred, in spite of a blood pressure of 195-120. She did not respond to treatment at all and died with edema of the lungs twelve hours after admission.

Another case was a primipara with a marked cephalo pelvic disproportion who refused a Cesarean section. After a 34 hour labor with no fixation and a continued refusal for a section, a podalic version and extraction was done resulting in a still-born baby. There was considerable trauma and shock associated with the delivery and a se-

vere infection occurred, and death resulted a month after delivery.

One case of peritonitis resulted after a Cesarean following a 35 hour labor in a paraviv with a cephalo pelvic disproportion. The case was a poor risk for a Cesarean and peritonitis and an abscess of the abdominal wall resulted.

The other case of peritonitis resulted from a spontaneous rupture of the fundus of the uterus. The rupture was not recognized until after delivery because there were no symptoms except for extreme tenderness over the entire abdomen with no signs of shock and apparent continuance of the uterine contractions. The placenta was retained and the patient in poor condition, and when a manual removal was done, the rupture was discovered. The uterus was immediately sutured, but peritonitis developed and the patient died in a week.

Fetal and Neonatal Mortality

	Total	Percent
Deaths .....	142	11.4
Viable Births .....	108	8.8
Term .....	53	
Premature .....	55	
Nonviable .....	34	
Still Births .....	92	
Term .....	41	
Premature .....	51	
Neonatal .....	50	
Term .....	12	
Premature .....	38	
Premature .....	89	

The viable births include babies twenty-eight weeks or older.

Causes of Fetal and Neonatal Deaths

	Total
Syphilis .....	35
Prematurity .....	32
Intracranial Injury .....	33
Asphyxia (Intra-Uterine).....	12
Toxemia of Mother.....	8
Uremia .....	1
Eclampsia ..	1
Congenital Anomaly .....	3
Prolapsed Cord .....	2
Diabetes of Mother.....	1
Cholangitis .....	1
Hyperemesis .....	1
Premature Separation of Placenta.....	1
Placenta Previa.....	1
Shock .....	1
Unknown .....	26

In some cases there were several causes of death given, such as prematurity and intracranial injury, prematurity, syphilis and etc. Under the headings prematurity and syphilis, are more details of fetal mortality.



Type of Delivery in Relation to Fetal Mortality

	Total	Percent
Spontaneous Deliveries.....	1087	86.1
Fetal Mortality .....	106	9.7
Operative Deliveries.....	176	13.9
Fetal Mortality .....	36	20.4

During the year we found that the fetal mortality from operative deliveries was just twice as great as that from spontaneous—even with the inclusion of premature deaths under spontaneous delivery.

Operations for Delivery

	Total
Cesarean Section.....	14
Initial .....	12
Repeated .....	2
Versions (with Breech Extractions) .....	43
Breech Extractions .....	33
Forceps .....	87
High .....	13
Mid .....	31
Low .....	43
After Coming Head.....	27
Craniotomy or Embryotomy ..	1

Of the fourteen Cesareans, one died as noted above, due to peritonitis.

Elective Cesarean Sections: There were eight elective sections. Two of these were done because of fibroids—one causing overdistention and filling the entire abdomen. The patient had pressure symptoms and a blood pressure of 188-110. The baby weighed only two pounds, twelve ounces and died a few hours after birth. The other fibroid case was one involving the lower uterine segment on whom a previous Cesarean had been done. Both of these operations were Porro Cesareans.

There was one elective section and sterilization done because of carcinoma of the cervix, which had been treated with Conierral.

Three elective sections were done because of generally contracted pelvis where babies had previously been lost after attempts at vaginal deliveries had been made.

One case had a previous Cesarean after a trial labor and she had a section and sterilization.

The other elective section was a case with an ovarian cyst containing five gallons of fluid. The cyst was found to be malignant. All these elective sections had live babies except the first with the large fibroids. All the patients recovered but there was a 50% morbidity.

Cesarean Section After Trial Labor: There were six Cesareans after trial labor. The one which died, I have already described. Five were operated because of a cephalo pelvic disproportion after trial labors from

eight to thirty-five hours without fixation. All the babies lived. All these patients had fever afterwards. The other case was one who had an amputated cervix. After two hours of moderate pains did not cause dilatation, a Cesarean and sterilization was performed.

All the Cesareans were the High Classical operation except the two Porro Cesareans. One baby was lost and one mother lost. Sterilization was performed by resecting the fallopian tubes and burying the proximal ends into the uterine muscle.

Operations Other Than for Delivery

	Total
Induction of Labor (Mechanical).....	18
Bag .....	18
Bougie and Catheter.....	0
Packing .....	0
Episiotomy .....	18
Blood Transfusions .....	27
Manual Removal of Placenta.....	2
Sterilization .....	6

Chiefly labor was induced for toxemia or on cases at term where it was felt that waiting longer would give a baby too large for safe delivery. Episiotomies were done only occasionally especially in funnel pelvis. Blood transfusions were resorted to only for hemorrhage and infections. Manual removal of the placenta was done in the case of ruptured uterus and in another case of a contraction ring which reformed after delivery and which required a deep anesthetic for relaxation and removal of the placenta.

Premature Labor

	Total	Percent
Premature Labor Cases.....	125	9.9
Mortality .....	89	71.2

Causes for Premature Labor

	Total
Syphilis .....	21
Death in Uterio.....	22
Placenta Previa .....	3
Overdistention .....	2
Toxemia .....	3
Toxemia with Induction .....	1
Fibroid .....	1
Premature Separation .....	2
Infection of Mother.....	1
Self Induced .....	1
Anomaly of Fetus.....	1
Nephritis .....	1
Habitual Premature Labor.....	1
Unknown .....	67

The cause of prematurity in half the cases is unknown. Surely if we can find out the etiology of this condition, the fetal mortality can be improved considerably.

Lacerations			
Total	Percent	Primipara	Multipara
	2nd Degree		
102	8.1	74	28
	3rd Degree		
2		2	0
Hemorrhage			
			Total
Hemorrhage			75
Placenta Previa			4
Premature Separation of Placenta			8
Postpartum Uterine			62
Others			1

There were no severe ante partum hemorrhages and no deaths. Placenta previa was treated by insertion of an intra-ovular bag. The surprising number of sixty-two cases of postpartum hemorrhage means merely that those cases lost 500 cubic centimeters or more of blood, and the diagnosis is not based upon clinical signs. One case of hemorrhage resulted from a torn vaginal vessel which was sutured after considerable hemorrhage. This was followed by the formation of a large hematoma.

Toxemias				
	Total	Clinic		Total
		White	Col.	White Col
Toxemias	56			
Eclampsia	56	4		6
Pre-eclamptic and Nephritic	42			
Pernicious				
Vomiting	4			

The death from eclampsia has been described. Our general treatment consists in rest, elimination and dilution of the toxin with special emphasis on intramuscular Magnesium Sulphate and intravenous glucose.

The pre-eclamptic and nephritic types of toxemias were not separated because it was not accurate always to diagnose the cases at the time and our follow up wasn't always satisfactory. The treatment was the same for each although the prognosis is of course different.

Syphilis		Total
Total Cases		137
Treated this Pregnancy		74
Babies living		67
Babies dead		7
Not treated this pregnancy		63
Babies living		32
Babies dead		31
Wassermann Omitted		69

In all there were 137 cases with positive Wassermanns or an incidence of 11.5%. There were divided into two groups, those treated this pregnancy 74 and those not treated 63. The results approach the figures reported by McCord on treated and untreated syphilis. Of the 74 cases that were treated 67 or 90.5% of the babies were alive at the end of two weeks, while of the 63 untreated cases only 32 of 50% were alive at the end of two weeks. These figures are surely convincing enough to prove the value of active anti-syphilitic treatment during pregnancy.

Morbidity		
	Total	Percent
Febrile Cases	100	7.8
Spontaneous with Morbidity	68	6.3
Operative with Morbidity	32	18.1

Causes of Morbidity	
Pelvic Inflammation	48
Meningitis	1
Pyelitis	6
Pyonephritis	1
Cystitis	1
Pneumonia	3
Upper Respiratory Infection	5
Mastitis	10
Breast Abscess	1
Arthritis	1
Gastro Intestinal	1
Tonsillitis	1
Pulmonary Infarcts	1
Septicemia	1
Abscess Abdominal Wall	1
Influenza	1
Absorption from Macerated Fetus	1
Recto-Vaginal Abscess	1
Furuncle Nose	1
Malaria	1
Peritonitis	2
Unknown	15

Our classification is that used by Williams—a temperature of 100.4 for two successive days after the first twenty-four hours postpartum. It is very significant that the morbidity rate after operative deliveries is three times as great as after spontaneous deliveries.

The causes of morbidity are self explanatory on the chart except for pelvic inflammation. Under this heading is grouped sapraemia, septic endometritis, lochia metria, salpingitis and pelvic cellulitis, because it is drawing too fine a line to diagnose one of these conditions separately from all others.

Only one breast abscess occurred in the hospital. Breast abscesses occurring after discharge from the hospital were readmitted to the surgical service and are not included in this report.



	Contracted Pelves		
	Total	Term	Premature
Contracted Pelves	290	260	30
With Spontaneous Deliveries	213	189	24
With Operative Deliveries	77	71	6
Pelvic Measurements Omitted	159		

As is the experience in other clinics, we had three-fourths of the cases of contracted pelves deliver spontaneously. More and more are we realizing that contracted pelves per se is not an indication for operative interference. We feel that there are five and sometimes six factors concerned—size of pelvis, size of child; presentation and position of fetus, strength of contractions and malleability of baby's head. Sometimes there is an abnormality of cervix and impedes dilation.

#### Presentations and Positions

	Total
Vertex .....	1052
Breech .....	49
Persistent O. P. ....	42
Brow .....	1
Face .....	2
Transverse .....	8
Precipitate .....	160
Multiple .....	14
Compound .....	2

During the year there were certain obstetrical as well as surgical and medical complications and abnormalities. They are mentioned for completeness:

Contraction Ring .....	6
Hydatid Mole .....	1
Rupture of Uterus .....	1
Amputated Cervix .....	1
Adeno-carcinoma of Ovary.....	1
Recto-vaginal Fistula .....	1
Diabetes .....	2
Abscess of Jaw .....	2
Hysteria .....	2
Multiple Sclerosis .....	1
Epilepsy .....	1
Mumps .....	1
Acute Vaginitis .....	1
Tuberculosis .....	2
Moron .....	1
Deaf Mute .....	1

#### Injuries and Abnormalities of Baby

Impetigo .....	5
Ophthalmia .....	11
Spina Bifida .....	1
Polydactylism .....	7
Fractured Clavicle .....	1
Fractured Femur .....	1

Fractured Tibia and Fibula.....	2
Hemorrhagic Disease of New-born.....	3
Congenital Absence of Ring Lung.....	1
Eczema .....	1
Deformity of Right Leg.....	1
Hydrocephalus and Evisceration.....	1
Club Feet.....	1
Erb's Palsy.....	1
Breast Abscess .....	1
Congenital Inguinal Hernia.....	1
Anencephalon .....	1

#### CONCLUSION

This report brings out several points of which we all were aware, and calls to our attention several other factors, which only such a statistical report as this can bring out.

1. There were approximately an equal number of white and colored patients delivered during the year. 70% of the patients received prenatal care.

2. The maternal death rate was 5.5 per 1000, 3 of the 7 deaths occurring from infection after delivery. The death rate was too high although 3 of the cases were beyond our control when treatment was instituted.

3. The gross fetal mortality of 11.4% and the 8.8% mortality of viable babies appears extremely high, but over half of these deaths occurred in premature children.

The cause of half the 125 premature deliveries was unknown and if more study is made of prematurity and its causes the fetal mortality figures may be much improved.

4. The fetal mortality for operative delivery was three times as great as for spontaneous deliveries.

5. Fourteen Cesareans or 1 for every 90 deliveries occurred. The one death was from infection in a case which was a bad risk for section. One fetal death occurred—a non-viable baby in which a hysterectomy was done for a very large fibroid.

6. Sixty-two cases losing more than 500 cc's of blood at delivery are too many, and the treatment of the third stage of labor should be investigated more closely.

7. The improvement of fetal mortality by the active treatment of syphilis during pregnancy has been proved and our results bear out the importance of the treatment.

8. A morbidity three times as high with operative delivery as with spontaneous delivery is self evident of the danger of unnecessary operations.

9. Contracted pelves per se do not contraindicate spontaneous delivery, as evidenced by the fact that 73.5% of our contracted pelves delivered without assistance.

#### DISCUSSION

Edward Speidel, Louisville: The efficiency of an obstetrical service is judged by its maternal and fetal death rate. I am not here to excuse

the fetal or the maternal death rate in this report, but to emphasize a few things in connection with it.

As all of you know, in a public hospital like the Louisville City Hospital, all kinds of cases are admitted, and of course we receive cases that are almost moribund and that have been extensively handled on the outside.

In addition, any death occurring in the obstetrical service, no matter from whatever cause, is classed as an obstetrical death, so that also influences the mortality. In spite of that, it seems to me a maternal mortality of seven in 1263 deliveries, practically a little bit more than one-half of one per cent, compares very favorably with similar reports from other institutions of a public character.

When you consider besides that three of those deaths were practically not chargeable to the obstetrical service, that reduces the mortality considerably more. The one patient with a suppurating meningitis, after an easy delivery died the following day of this previous infection, and you could hardly call that an obstetrical death.

Take the eclampsia case that absolutely refused to enter the hospital until she was practically beyond any chance of relief. Then there was the woman who refused a Cæsarean section and made it compulsory on our part to resort to an extremely difficult vaginal delivery after she was thirty-four hours in labor. Deaths of that kind can hardly be charged to an obstetrical service with fairness. However, it isn't a good plan to juggle statistics. So we present our statistics as seven maternal deaths in 1263 deliveries.

The fetal mortality distresses us. It seems enormously high, 142 fetal deaths in this number of deliveries, an incidence of more than 11 per cent. However, there again when you begin to study and analyze, you find that 34 of those babies could not have been expected to live under any circumstances because they were non-viable, they were not 28 weeks advanced in gestation. That reduces the fetal mortality automatically to 104 in the number, 8.8 per cent.

When you consider that a great many of those cases were syphilitic, that is another element. We had 137 syphilitic patients, and only 67 out of that number had any syphilitic pre-natal care. As you know, under the best of circumstances the baby of the syphilitic is either a premature baby or of low vitality at the time of birth, so that is another excusable feature of the mortality list.

Thirty-two intracranial injury deaths seems a large number. Again, unless you understand that in the great number of instances those injuries were inflicted upon premature babies, it seems high. It is a well known fact that extreme care must be used in the delivery of

premature infants because the least unusual pressure upon the head results in a cerebral hemorrhage that may cause death. It must also be remembered that a cerebral hemorrhage, slight or severe, causes an asphyxia, and when babies are born asphyxiated, it is a better plan to consider that they have a slight cerebral hemorrhage and that the mildest forms of resuscitation must be used to resuscitate such infants in order not to increase the hemorrhage.

It is the custom of the obstetrical staff in the City Hospital to discuss the maternal deaths, as they occur, and try to see in what way they could have been avoided. Practically in this whole series of seven deaths we could hardly see a way in which a fatality could have been averted. We are not satisfied, however, with our fetal death rate, and although a great deal of it is excusable, as I have pointed out to you, we expect to make quite an effort in that direction next year in order to improve that part of our report.

**Alice N. Pickett**, Louisville: We have proven to our satisfaction that maternal and fetal death rates can be lowered by pre-natal care. In 2,000 consecutive cases handled by the department, the death rate for mothers was found to be in the non-clinic group eight times that of the clinic group.

The non-clinic fetal death rate was three times that of the clinic rate.

Dr. Starr has brought out most graphically the results obtained by antiluetic treatment during the prenatal period. The work was really better than the figures would indicate; we can count as a treated case any woman who had even one treatment. The woman who has received as many as five injections of neo-salvarsan may reasonably expect to be delivered at term of a living and apparently normal baby.

You noticed that we had four clinic patients who developed eclampsia. This, too, looks worse than it really is. These women were registered in clinic but their treatment was very inadequate. No woman receiving even fair treatment developed eclampsia. None of the four eclamptics—coming in from the clinic were lost. The treatment given these cases was not sufficient to prevent eclampsia, but it did so lessen the severity of the toxæmia that none of them died. I think we will all agree that maternal deaths from eclampsia should be very rare.

The number of fetal deaths from prematurity was disheartening indeed. We accept the problem of preventing prematurity as the obligation of the medical profession. The death of a baby from prematurity very frequently can be laid at our door. Often we have failed to diagnose and treat lues—or we have failed to advise the mother as to the early symptoms of threatened miscarriage, e. g.,—bleeding, no matter how slight; pain in the lower abdomen; sacral backache; sense of prolapse. If the significance of these symptoms was understood by our



mothers—our premature deliveries would be greatly reduced.

We have tried to teach conservation obstetrics in the Louisville City Hospital. You must agree that we have done well to hold our Cesarean section incidence to one in ninety. This is one of the lowest rates in the whole country. We teach that Cesarean section is not free from risk to the mother and should not be resorted to without definite indications. The operation lifts the morbidity as well as the mortality rates, and enhances the dangers to be encountered in future pregnancies. We have just recently admitted two cases of ruptured uterus. The ruptures occurred in the homes during the first stage of labor. One case had previously been operated on for a right-sided tubal pregnancy. The subsequent rupture extended from the right cornus across the fundus of the uterus. The second case had had a previous Cesarean section. The rupture occurred in the line of incision.

**Arthur T. McCormack**, Louisville: I want to congratulate the staff of the City Hospital on its presentation of this report. I think it is one of the finest things that ever happened. We are not going to solve any problem that is before the profession until we know the facts. We have got to have a frank invoice of the conditions.

Dr. Speidel did just exactly what I would have done if I had been in his place. You could see running through his whole remarks a sort of apologetic thought because there had been any deaths at all.

The difference between what this staff has reported and those of us who are practicing obstetrics elsewhere is that they have just told the truth about the thing and have known the facts, and we have not. If the records of the practicing obstetricians of the state were all made as frankly as this one, we would then be on the way to saving our mothers and babies as we ought to be saving them. There is no question that we have gone along through the centuries losing mothers and babies unnecessarily; we are doing it today, and when we do we concoct the most plausible alibis to ourselves and to our public in the world. The truth of the business is we have not been investigating the thing as we ought to do. We have not gone to the bottom and ferreted out the whole truth.

I am very hopeful that some county societies where there are considerable numbers of maternity cases will as a society, keep this same class of records, will differentiate between the cases that have pre-natal care and the cases that do not have pre-natal care, will have Wassermanns done on every single patient. I think that a man is guilty of malpractice who permits a woman coming to him for prenatal care to be delivered, in his practice of a premature

baby without having had a Wassermann done, providing, of course that he had charge of that patient, I do not care where the patient is located. It is easy to have a Wassermann done anywhere, and it ought to be done on every single case that has pre-natal care. As soon as that is done and as soon as those cases are given the treatment that they ought to have, we will begin to get the results that we need to get.

If we will take this study home with us, if we will read it carefully as it appears in the Journal, and then will begin to do this work carefully, we will get results that we want. Our results will be, through the fine cooperation of the doctors of the state, a professional group, better than any other state's in the Union.

We have reduced our maternal mortality rate, we have reduced our infant death rate remarkably; we are on the way to the reduction of our neonatal rate because we are beginning to realize the facts, and until we realize them there is no possibility of their remedy.

We are all familiar with the splendid type of doctor that never had a death in either mothers or babies. Of course most of them are liars. If they are not, they are awfully lucky.

Statistics are wonderful things. A great many of them are not so.

I want to say for the State Board of Health that for the first county society of the state that will undertake a study of this kind we will furnish a nurse for a year to carry on the study and help with the work, and be glad to do it. We would like to have some county society forward-looking enough to carry out this same class of work, this same class of study for private patients that has been done here so splendidly in a public institution.

When you consider the class of patients that they have in Louisville—of course, we all have them in our practice; I had them when I was in practice—you wonder how they get such good results. But as a profession we have got to make this invoice, to find these facts, and then we have got to get our heads together and work to the very best of our ability in the solution of the problems that arise when we are confronted with the accurate statistics given here.

We are going to be able to reduce prematurity. As soon as we realize that a considerable majority of our infant deaths in Kentucky are due to prematurity, as Dr. Veech is going to develop to you shortly, we are going to begin to get ready to do the job and to give our mothers a square deal.

I do not suppose any man stands before the public in Kentucky as a candidate for office without saying some of those things about motherhood that make the little thrills run up and down your spinal column. We have been bragging about our mothers for a long time, but

we have been doing very little else for them. The time has come when we must confront our problem as the profession needs to confront it.

This group has set us an example not only of efficiency. There is not a thing in their record to apologize for, except that our predecessors have not already done this thing and found out about it so we could be avoiding the mistakes that we see have been made with the very best professional training that it is possible to obtain. The other groups in the state, the pediatricians, the surgeons, the eye men, the throat men, ought all to be getting up such studies as this and finding the conditions that we can relieve, and show the people of the state what, as a profession, we can do when we face the facts, and not just gloss them over. We must be willing not merely to let patients come into our offices, and look at them and tell them what is the matter with them and give them advice or a remedy without an accurate diagnosis and without keeping our own records accurately and correctly, without reporting our failures. The man who reports a thousand cases of typhoid fever without a death has not made a contribution to science at all, not in the slightest degree, but the man who shows why one patient dies and thus offers an example from which numerous others can be saved, has made a real contribution to science. It is from the report of our failures that we are going to get most of our constructive work.

**Annie Veech, Louisville:** I am presenting this graph, which shows a study of infant mortality in Kentucky in 1928, to show you what has happened here. The first column indicates the number of babies who died before they were one year old. There were nearly 4,000 deaths; to be accurate,—3,996. The next column shows the deaths of prematures and those under one month. There were 2,288 of these. These can be classed under natal, pre-natal and neo-natal causes. The short column represents those deaths that died from all other causes during the last eleven months of the first year. There were of these, 1,708. This shows that there were 580 more babies that were premature and died during the first month of life than in all the other eleven months of the first year.

Much can be done by better pre-natal, natal and neo-natal care to lower these figures. Dr. Starr's figures from the City Hospital show you the careful work they are doing. This is a distressing problem throughout our state. You see it means the need of more and better pre-natal, natal and neo-natal care of our mothers and babies.

**Jethra Hancock, Louisville:** I rise to discuss for a moment familial syphilis. This is a condition that the City Hospital cannot cope with until we have instituted follow-up pre-natal care through the City of Louisville. The State Board of Health through the Bureau of Ven-

ereal Diseases is doing something to help this along now in coordination with Dr. Pickett's work. We hope to carry it further by organizing in the City of Louisville, particularly there as we have a followup worker there to follow up pre-natal work, the other agencies throughout the city for pre-natal care and the apprehension, during the expectant period, of syphilis. If we do this, we will reduce these figures given in Dr. Starr's paper, which we have not been able to analyze for lack of time, very, very materially.

Dr. McCormack has said something to you that I am sure he feels and knows, that it is indeed reprehensible that a physician would permit an expectant mother to go through her pregnancy with no investigation whatever as to the possibility of syphilis, when the facts are that he may have cause to believe her social surroundings are such that it would be easy to suspect that such a condition might exist. Even though we have no historical inkling that such may be, it is our duty to be on the lookout for this complication as much as we would be for eclampsia or any kidney lesion or any other lesion that would be destructive to pre-natal life or to child life early after birth.

I don't know how to speak to you as earnestly as I feel on this subject. I might digress to say that our time heretofore has been spent in bringing the question of syphilis to the fore as it relates to the general population, but it is borne in on my consciousness more and more that we must address ourselves from now on to this phase of it even more, because it is just in this phase that the greatest good may be done to posterity.

It is altogether possible that any physician who has to do with the care of an expectant mother can have her Wassermann done. If she is indigent, that Wassermann can be done without cost to the family or to the physician. If any of you don't know the way to have that done, correspond with the Bureau of Venereal Diseases at the State Board of Health and we will gladly put you in touch with such a service.

I don't know just what has been said, and I shouldn't like to get in conflict with something that has already been said, because I know Dr. Pickett has done this work very carefully for a long period of time, but I know I am safe in saying that if we will treat the pre-natal mother who has syphilis during the first three months of her pregnancy, we have every reason to expect a healthy child both clinically and serologically. If we treat her during the next three months of her pregnancy, the results are not nearly so good, but much better than if we treated her in the last three months of her pregnancy.

If the child becomes infected from the mother's placental circulation, it is usually infected after the first three months. Hence the splendid



results that are had from the early treatment of the mother. The protective bodies in the mother during her pregnancy are almost a treatment in themselves. Hence the splendid results that are had from just a little treatment during this period. If we treat her just a little we get usually an apparently healthy child, and it is quite easy to treat that child on through adolescence with good results.

I certainly regret that I did not hear the paper read so that I might be more conversant with what has been said. I urge again that every doctor should have a Wassermann done and address himself to this phase of pre-natal care.

**Smithfield Keffer, Grayson:** I just want to say a word about that much maligned country doctor. I was once a country doctor, and I am yet. I don't do much obstetrical work if I can avoid it now. Before the war I had 1202 obstetrical cases, and I don't believe I was ever consulted for pre-natal care in a dozen of those cases. I say we can't help what the other folks neglect to do. If they had called on me I would have been glad to advise them, and so would you and the rest of the doctors.

It is pretty easy for you folks in town to enthuse people about pre-natal care, but I have delivered women that I never saw before and have never seen but once since. How can you make a study of a case like that?

I am a firm believer in every woman going to her doctor before the time of delivery for advice and observation but they won't do it, at least they haven't done it, yet I feel the country doctors have in spite of this, about as good a record as you have in the city.

I know a doctor who has handled about as many obstetrical cases as mentioned in this paper with a lower death rate. He only lost one mother, and had only six forceps deliveries in all of them, and I don't believe he lied about it either.

**Dr. McClure and Dr. McCormack,** you have Dr. Veech continue to train these mothers over the state, and then when they come to us we will be glad to do everything that we can to help them.

**S. H. Starr,** (in closing): As was told you in the beginning, this is merely a statistical report showing what was done in the City Hospital. To me it brings out a very important feature. Our fetal death rate is due to the fact that we have so many premature children, which shows that we should probably put more emphasis on the care of the mother during the early part of her pregnancy. We have emphasized the care of the patient during labor, we have emphasized pre-natal care when we were confronted with toxemia, and when we were confronted with hemorrhage.

The reason half of our premature list was unknown of course leads us to further studies

to find out why these cases were premature. If there is any one single thing in this report that is especially to be noted, it is that we should investigate more closely our cause of prematurity and see if it is some vague focus of infection that the patient has, or possibly the fact that one negative Wassermann does not necessarily exclude syphilis every time. There may be some clinical findings that will show syphilis where the serological findings are negative.

## PREGNANCY IN HEART DISEASE\*

L. T. MINISH, M. D.,

Frankfort

The subject assigned to me for this paper, "Pregnancy in Heart Disease," is one that should be of vital interest to all general practitioners as well as to the obstetrician. I frankly admit that I have nothing new to offer for your consideration, either from my years of personal experience or that gleaned from the literature, but I think it is well that we at times pause and take stock of what knowledge we have on the subject. As I cannot offer you anything new, I wish to emphasize some points that may be considered old, but important.

The changes in the circulatory system during gestation are marked, the whole cardiovascular system being affected, though not in the same degree as was formerly believed. Larcher, in 1857, described an eccentric hypertrophy of the heart, especially of the left ventricle. Blot and other French authors agreeing with him. Later investigations (Muller and Dreysel), considering the weight of the body with that of the heart, have shown that there is only a slight, if any, enlargement, and that it is proportionate to the general increase of the body; and Smith, aided by the electrocardiograph, found no hypertrophy.

The arguments for accepting the theory of hypertrophy are:

First, the physiological need for more work by the heart; the increased amount of blood to be moved; the increased viscosity of the blood; the addition of the large area of blood vessels of the placental circulation, and the dilated and new blood vessels of the uterus; the increased abdominal tension.

Second, the results of postmortem measurements, the majority of authors finding some increase in weight.

Third, the clinical findings.

There is an increase in the area of cardiac dullness due to the elevation of the diaphragm and leveling of the heart. Roentgen-ray examination of the chest in pregnancy accord-

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ing to Kraus shows two types: one with long thorax, a convex diaphragm, and undisturbed heart; another with short thorax, raised and flattened diaphragm, and heart placed horizontally. The heart in all cases is pressed against the anterior chest wall, displacing the lungs; thus the area of cardiac dullness is enlarged. Murmurs of various kinds are often heard over the heart, not transmitted far, and not always accompanied by accentuation of the second pulmonary sound. They are usually hemic in origin, but may be due to displacement of the heart, or kinking of the pulmonary artery, and almost invariably disappear shortly after delivery. So one must be slow to diagnose heart lesions in pregnancy, but it is generally admitted that the heart is peculiarly liable to disease during gestation, and that existing disorders are aggravated. Capillary angiospasm is found in sixty per cent of normal *gravidae*, and is one of the causes of edema, according to Hinselman.

A frequent complaint by pregnant women is of fainting spells; there are also attacks of palpitation with a sense of suffocation. These phenomena are usually due to disturbed nervous system, hysteria, a full stomach, constipation, or the toxæmia of pregnancy.

A normal healthy heart easily satisfies all the extra demands made on it by gestation and labor: even a diseased heart, if compensation is good, often sustains the additional strain without laboring hard. Pregnancy, therefore, in mild heart cases, in young, otherwise healthy women, does not seem to exert a very harmful influence on the disease. However, De Lee says, "that it seems to him that these women develop decompensation and die sooner than other women and men with similar cardiac disease." If the disease is advanced, if the heart is in unstable equilibrium, and especially if myocarditic or fatty degeneration has occurred, the danger of broken compensation with its pernicious sequelæ is present.

Pregnancy predisposes to an acute exacerbation of chronic endocarditis, especially if the latter be not too old, and with this sometimes a fatty degeneration of the papillary muscles occurs, which has a bad effect upon the compensation. The congestion of the venous system leads to kidney and hepatic disturbances: the pulmonary congestion leads to dyspnoea and carbonic acid narcosis, and the high position of the diaphragm, with the slight decrease of vital capacity, augments the respiratory difficulty and cyanosis. Near term the blood pressure may rise. Transudation in the *plura* may cause compression of the lungs, hypostatic pneumonia, insomnia, albuminuria—all these show that the compensation is broken and warn the accoucheur of

impending danger. Occasionally symptoms of Basedow's disease appear—struma, tachycardia, sweating, exophthalmous, etc., and other endocrinal gland disturbances.

After many years of practice, in March, 1926, I lost my first case of pregnancy, while in labor. I was doing a forceps delivery when my patient died. A living baby was delivered after the mother's death. This patient was an old *Primipara* with myocarditis caused by Basedow's disease. My advice to intercept pregnancy at the seventh month was not heeded on account of religious faith.

During labor there is danger from not fully compensated hearts, and, too, an apparently competent heart may suddenly prove to be in default. De Lee says that he "has seen two cases of acute dilatation of an apparently normal heart, but probably unsuspected myocardial disease was present." Even a strong heart may not be able to stand the strain of an unduly prolonged second stage. The electrocardiograph shows that the heart does more work during labor. It is the fluctuation of the blood pressure incident to labor which is hard on the heart. If the heart holds out until the baby is born, the balance of the circulation may be established rapidly; however, in not a few cases sudden death in collapse does occur; this fatal collapse may be several hours after delivery. De Lee reports a case on the eighth day. The most treacherous cases are mitral stenosis. Usually there is myocardial disease also.

Valvular lesions are less affected by gestation than the myocardial diseases. This is a point that is emphasized by many authorities, but myocarditis frequently accompanies valvular lesions, especially mitral stenosis, and always clouds the prognosis. Auricular fibrillation is always of bad prognosis; Tachycardia is frequently met. It subsides after delivery.

A diseased heart is aggravated by the complications of pregnancy; for example, twins, polyhydramnion, contracted pelvis, tuberculosis, toxæmia, nephritis, etc.

Effects of Heart Disease on Pregnancy. Abortion and premature labor, especially the latter, occur in cases of decompensation, in from twenty to forty per cent, and still birth in twenty to seventy per cent, according to the figures collected from various sources by Fellner. Labor is often slow, the pains not good, and operative interference commoner. Some claim that post partum hemorrhage is frequent, as well as placenta marginata; the lochia are somewhat profuse and prolonged, and lactation is imperfect.

Prognosis: DeLee says his experience has taught him "to fear the complication of heart disease in pregnancy, for even though one



brings the patient through alive, the dangers that threaten at every step are very disquieting, and when accidents occur, they require the promptest and most skilful treatment."

I will not attempt to go into the treatment and management of heart disease in pregnancy, except to say that a woman with uncompensated heart disease should not marry, and if married, should not conceive.

#### DISCUSSION

**Edward Speidel**, Louisville: With the cooperation of a competent cardiologist or internist with the obstetrician the complication of pregnancy and heart disease is much more readily taken care of, and in the larger clinics that is exactly what is being done at the present. Heart cases are not only in the charge of the obstetrician, but a cardiologist at the same time. Naturally, of course, that is not possible in ordinary practice or in outlying districts. However, a cardiac case should receive intelligent treatment throughout the entire period of pregnancy.

There is a great deal of dispute as to which murmur is the most serious one when it comes to this complication in pregnancy. One set of men with large experience will claim that the mitral stenosis is the more serious, another the aortic regurgitation.

Those with extensive experience now judge the condition in the following manner: by the effect that the lesion has upon the patient under her living conditions. That is, if the pregnant woman can perform her ordinary duties without special distress, then you may disregard the heart murmur. If in consequence of performing her ordinary duties she suffers readily from dyspnea or the condition weakens her and distresses her very much, then it requires attention, naturally.

If she shows signs of constant cough, hemoptysis, and especially of persistent signs of edema of the lungs, then she has partial decompensation and must be placed in bed throughout the rest of the period of pregnancy.

In fact, the most important thing to watch in pregnancy complicated with heart disease is the base of the lung posteriorly, and persistent rales in that region indicate a beginning decompensation of the heart.

When it comes to the treatment of these cases of pregnancy complicated with heart disease, it depends very much upon whether you are dealing with a primipara or a multipara or whether decompensation has occurred in the course of the pregnancy. In multiparae, in consequence of the fact that there is an edema of the cervix and the lower genital passages due to the venous congestion, to our surprise in many instances we find that the woman has a very easy labor.

I have in mind the wife of a doctor, a member of this Association, whom I delivered three times, a woman having heart disease in preg-

nancy. In each instance she had an extremely easy delivery. Very little relief could be offered her during the delivery—a small amount of morphine. If an attempt was made to give her an anesthetic, chloroform, ether or nitrous oxide, she immediately became very deeply cyanosed. Fortunately, as I say, her labors were very short.

If you are dealing with a multipara, she may be subjected to the test of labor. Unless she responds very quickly and has a comparatively easy labor, then she is in danger of collapse during the further conduct of that labor.

In cases where decompensation has occurred during the pregnancy, the delivery should be by cesarean section. I think the delivery had better be under a general anesthetic. Ether is the one that seems to be more favorable in these heart cases than local anesthesia or spinal anesthesia, because under ether anesthesia the operation can be very quickly performed and under these local anesthetics the cardiac patient is conscious of what is going on, and I think that the fright and terror of the procedure is more of a shock to her and puts her in more danger than a general anesthetic.

**B. S. Rutherford**, Bowling Green: The patient with a cardiac lesion, to my mind needs special attention. We should see that compensation is maintained by rest, digitalis if necessary, and where we find a marked decompensation we can often restore it and enable a woman to go into labor in a healthy condition, and we don't usually anticipate any trouble.

**H. A. Davidson**, Louisville: I feel that if these doctors have been good enough to come here and read these papers, we ought to discuss them a little more freely than we have been doing.

Obstetrics complicating heart lesions brings up a difficult problem for the obstetrician. The woman should be watched very carefully from the incipency of her pregnancy, and if you are in the city where you can call in consultation a heart specialist, that is the time to do it, because you want all the help you can get.

Of course, as Dr. De Lee has said, and as all obstetricians have said, fatalities occur in heart cases in obstetrics when you least expect them. I make it a point to call a heart specialist into the case to examine the woman beforehand and to help in the treatment beforehand. Then I am very careful to call in the very best anesthesiologist that I can find to be present at the time of labor. I also give as little anesthetic as possible. You don't want to do anything to injure the diseased heart, and of course we know nearly all the anesthetics affect it in some way or another.

I believe it is in these cases that toward the end of labor, in the second stage, a doctor should use forceps; by all means use forceps

instead of pituitrin in such cases as this, and also in a primipara with a very tight vaginal outlet, here is the time to do an episiotomy. Do an episiotomy and then apply forceps, and you will relieve the woman of a great deal of cardiac distress, and you will probably pull her through her obstetric delivery, whereas if she goes on and has to go through the whole second stage of labor without the help that you can give by doing an episiotomy and by applying forceps, she may succumb, that is the heart may fail.

It is in these cases that we must apply all of the aids that the obstetric art offers these cases of heart failure and of heart disease.

L. T. Minish, (in closing): I haven't anything further to add except to thank you for the discussion and to say that about 99 per cent of my primiparae have an episiotomy performed on them.

### CONTROL OF PAIN IN LABOR\*

L. L. WASHBURN, M. D.

Benton

One of the finest traditions of the human race is the sacrifice women make to bear children. Since time began they have gladly risked health, beauty, life itself—if necessary—and seldom counted the cost. Medical science will never hold a surer claim to immortality than the record of its painstaking efforts to lighten the shadows of child birth.

The practice of obstetrics is rapidly coming to occupy the high place that it deserves. Nowhere can the physician accomplish so much, both in the prevention of disease and accidents and in treatment and operation. It must be evident to anyone who will give the matter unbiased thought that, when obstetrics is invested with the dignity it deserves, such regard will immediately place its practice on a plane that will lead more physicians to select this specialty for their life work. There is no greater need for a specialist in any field than in that of obstetrics. Labor in the woman of today is no longer a normal function. De Lee says that 50 per cent of the women who have borne children bear marks of injury and will sooner or later suffer from them. The physician who conducts a patient through the peril and agony of child birth with no injury to herself or her child has displayed as much skill as has the surgeon who performs a successful appendectomy.

When a woman goes into the deep waters of labor, lingers sometimes on the brink of eternity and comes slowly back bringing in her arms a living soul, the pilot who has guided her through this experience with the

least possible degree of danger and pain is a doctor deserving the recognition of his profession. It is our duty to mitigate the suffering of natural labor. We possess no drug which is without danger to either mother or child, but while striving to reduce these risks to a minimum we continually search for the perfect anesthetic. At present we are using several: ether, chloroform, nitrous oxide and oxygen, ethylene, narcylen (acetylene) morphine, scopolamin, magnesium sulphate, chloral hydrate, and spinal, regional and local anesthesia with novocain, stovain, etc. One of these drugs or combinations may be employed, and we give them in all three stages of labor particularly the first and second, and also to varying degrees of unconsciousness.

In a multipara with rapid labor it is seldom necessary to give any narcotic until the end of the first stage, when ether or chloroform may be given to the obstetric degree with a short period of complete unconsciousness as the baby's head is being delivered, Ethylene may be substituted for the ether.

With primiparae and slow multiparae I give a hypodermic consisting of either 1-6 or 1-4 grain of morphine sulphate in 2 cc. of a 50 per cent solution of magnesium sulphate. The dosage of this varies with the weight of the patient, heavyweights getting 1-4 grain, while the lighter weights get 1-6 grain. Instead of morphine sulphate a preparation called pantopon may be used. This is a derivative of opium which is put on the market by the Hoffman-LaRoche Company. This is also put into the 2 cc. ampoule of magnesium sulphate, 50 per cent solution, and comes in 1-3 of a grain. During this first stage of labor we may combine scopolamin, grain 1-150 with morphine usually giving the beginning of the so-called "Twilight Sleep." Many men claim excellent results with this combination.

One hour after this treatment is given the magnesium sulphate is again injected, but with no morphine or pantopon. This injection is given in the upper and outer quadrant of the gluteal region, deep into the muscle. The patient at this time should have experienced some relief from her labor pains and is sometimes enjoying a light sleep. The patient should have already had the benefit of a cleansing enema. If a rectal examination is now made (and I prefer a rectal examination) and shows the cervix to be two or three fingers dilated, and the patient still complains of pain, I now give an oil-ether instillation. In this mixture are the following drugs:

Quinine Hydrobromide	grains 20
Ether	ounces 1½
Alcohol	drams 3
Olive oil	q.s.ad ounces 4

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At times the quinine is omitted. This depends on how much uterine contraction you wish to obtain. Now, with the colon clear, the rectal tube is introduced three or four inches into the rectum. Olive oil is poured into the funnel, followed by the oil-ether solution. At this stage it is well to tell the patient to draw up, as though she were going to prevent a bowel movement, and to hold this position until she is accustomed to the effect of the ether as it runs over the intestinal mucosa. Before instilling the oil-ether it is best to anoint the rectum and gluteal region with vaseline to prevent any irritation from the ether. A large towel which has been dipped in warm water is held against the rectum for ten minutes after the colon tube has been withdrawn. This gives a sense of comfort which is approved by the patient. If she co-operates with you, there will be little tendency to expel this mixture. Within fifteen or twenty minutes the parturient is feeling beneficial results, and is sometimes enjoying a nap. She may wake, ask for a drink of water, and go back to sleep. If the patient is restless for three or four hours, the instillation is repeated.

If the patient is now fully dilated, but pains have become sluggish, we may resort to a dose of pituitrin, the anesthetist being ready to follow up with gas-oxygen. With the advent of each pain the patient is asked to take three or four deep inhalations of gas and to bear down. With proper suggestions from the anesthetist, she will readily fall into this routine and it will not be long before she will tell him, "Another pain. More gas." With pains stronger, and with the head about ready to distend the perineum we tell the anesthetist to put the patient under gas-ether surgical anesthesia, where she will experience no pain whatever, and we can deliver at leisure.

When the baby's head has been extracted and the shoulders and body of the child delivered, the anesthetist may now flood the patient with pure oxygen to help not only in a rapid resuscitation of the child but also to bring the patient out of the anesthetic more quickly. If the examination of the perineum reveals any lacerations, a vaginal pack saturated with mercurochrome solution is introduced into the vagina and immediate repair of the perineum is now instituted under full surgical anesthesia.

After the repair has been completed the delivery of the placenta is made under a partial anesthesia.

For the relief of after pains I administer fluid extract of ergot one dram three times daily for three days.

Other methods for controlling pain may

be used, such as: Caudal Block anesthesia, which has been followed by Dr. Oldham of our state, and spinal anesthesia for which Dr. George H. McKin claims excellent results.

This procedure is advised if it is possible for the parturient to be in a hospital, otherwise a modification of this treatment must be made, the first two requirements always being absolute asepsis and sufficient capable assistance.

This subject, "The Control of Pain in Labor," is a challenge to the medical profession. Much has been done to alleviate the suffering attending child birth. We have made great progress since my first case requiring instrumental delivery. The parturient and I were the only ones present (the husband having fled from the scene after calling me). I administered chloroform to the surgical degree and delivered the baby with forceps. It is no longer necessary for a physician to work under such disadvantages.

No greater service is rendered the world than is given by the physician who, taking advantage of all that medical science has to offer, fortifies his arm, sharpens his weapons and adds force to his blows in the fight against the twin demons, hazard and pain, who hover so near the gate through which the human race must receive its life blood.

#### DISCUSSION

**Austin Bell, Hopkinsville:** I haven't very much to add to this paper. I do, however, want to express my appreciation of the splendid presentation of this subject by Dr. Washburn.

There is an old saying that meddlesome midwifery is bad. If that saying is true in any department, it certainly is true here.

I believe that the modern idea of painless obstetrics is bad. I don't believe a woman should expect to bring a baby into the world without some pain, and don't believe it is a doctor's province these days to expect her to be completely free from that pain.

We can do something to relieve the suffering where the pains are not especially good and where they are not producing any effect. In the early stages of labor morphine in small doses repeated, if necessary, will often give comfort and relief.

Last year, wanting to investigate this modern method of painless obstetrics, I went to one of the eastern cities and spent several weeks in one of the larger obstetrical hospitals. I observed closely their method of handling their obstetrical cases, and I frankly confess that I was very greatly disappointed. I don't think I have ever seen as many blue babies in my life as were born under those circumstances. I don't think I have ever seen as many instrumental deliver-

ies, as many Cesarean sections as were present in this hospital.

I believe it is a mistake, in fact I believe it is a crime, to use so much and so many different types of analgesia and anesthesia as to prevent nature from having its course.

I have never yet seen any anesthetic equal to chloroform wisely and carefully administered. The modern use of chloroform has been very greatly impaired by the fact that the younger generation has learned to use ether and the more harmless anesthetics, and in their use of chloroform they are likely to give large quantities and put the patient too profoundly under the influence of the anesthetic. But the patient who takes chloroform during the pain and has the chloroform withdrawn between pains, just before delivery, can have a little more of the anesthetic, with complete anesthesia, and have as painless a delivery as we can secure from any other form of anesthesia that I have ever seen, with relative safety, in my judgment, both to the mother and the child.

I think Dr. Washburn has brought us a very practical paper, and if the newer methods of administering anesthesia are advisable, certainly they are advisable under the care of a trained nurse, and even better in a modern hospital than in a home.

**Intravenous Urography.** — The present-day conception of intravenous urography are outlined by Cumming in conjunction with personal observations extending over a period of six months. Fifty cases in which intravenous contrast mediums were employed are discussed in some detail. Certain types of renal disease promise little or no diagnostic evidence after the administration of these drugs, namely, renal tuberculosis, renal tumors, acute inflammations, and marked renal insufficiencies as portrayed by advanced prostatism. In an analysis of thirty-eight cases selected for adaptability to diagnosis by means of intravenous urography, Cumming says less than 50 per cent were found as completely solved even from the roentgenologic standpoint, and each patient was perforce subjected to later therapeutic cystoscopic procedure. The best visualizations were obtained in cases presenting some degree of ureteral obstruction and in cases showing delayed kidney evacuation time, as illustrated by a kidney with retarded function following nephropexy or nephrolithotomy. The greatest concentration of the drug occurs, in most cases, during the second hour following its administration.

## PELLAGRA IN CHRONIC ALCOHOLICS\*

WINSTON U. RUTLEDGE, M. D.,

Clinical Assistant of Dermatology, Louisville City Hospital, Louisville.

A case seen recently in the Skin Clinic in the City Hospital recalled to my mind three similar cases seen there since the beginning of spring, in which patients came in complaining of eruptions on the dorsum of their hands, which three of them considered to be extreme cases of sunburn, while the fourth attributed it to the use of lime which he had handled in his work as a laborer.

In addition to their skin eruptions, they all complained of varying degrees of asthenia and nervousness which were first noticed at the same time or just prior to the appearance of the skin changes. Two had suffered from mild diarrhea for one week before coming to the clinic, while the other two gave no history of any gastro-intestinal disturbance.

They were all white men of middle age who worked at manual labor. Two were of Irish-American descent and two were not. Each of them gave a history of chronic alcoholism, dating back for years, but in each case there was also a history of an unusual and excessive consumption of alcohol for a relatively short period prior to the onset of their present illness. They had in every instance supplemented this alcohol intake with an extremely limited diet, consisting largely of coffee, soup and bread. None of them had included any green or raw vegetables in their dietary and none of them admitted any abnormal use of corn or corn products except possibly in the alcoholic form.

A typical history of one of these cases is as follows: Mr. J. P., white, male, age sixty-three, occupation carpenter, mother Irish, father American, had always enjoyed good health and worked steadily up to the onset of his present illness. He had been a constant, but moderate drinker most of his life, but twelve months previous when he had become separated from his wife, he had begun drinking more than ever and for the preceding two months, he had drunk between one and two pints of home brew or moon-shine daily. Due to an associate anorexia, he ate practically nothing except an occasional pork chop, egg sandwich or a bowl of soup.

Six weeks prior to coming to the clinic, he first noticed a pigmented area which appeared on the dorsum of his right hand. This gradually spread and after three or four days a few small blisters developed on these spots

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and at the same time the back of his left hand became red, pigmented and blistered, but as his work as a carpenter kept him continually exposed to the weather, he attributed the above changes to this cause.

This erythema, pigmentation and vesiculation progressed until the entire dorsum of both hands and fingers, down to the terminal phalanges were involved. The hands became swollen and tender and the patient suffered from a burning sensation in them. Because of this discomfort and marked weakness, he finally had to stop work and at the same time, on the advice of a physician, he stopped drinking and ate more food. The blisters spread until the backs of both his hands were covered with large confluent bullae which later broke, leaving the denuded areas crusted, dry, fissured and very painful, but under applications of vaselin, the skin slowly softened and healed to a large degree. Four weeks after the onset of this condition the patient felt much better and on the invitation of a friend, he drank a half pint of "Blue Heaven," an alcoholic concoction of the most inferior variety. That same night his hands began to burn severely and the following day the backs of both hands were again intensely red and painful.

This stage was again followed by vesiculation, desquamation and crusting. He drank no more from this time until coming to the clinic. On admission, he presented a sharply delimited, symmetrical eruption on the dorsum of both hands and proximal phalanges. The skin over the involved portion of the fingers showed only a moderate erythema and pigmentation, while extending from there over the backs of both hands to a line about one inch above the wrists the skin was in some places intact and of a brownish red color, while other portions were raw and painful from the rupture and desquamation of the large bullae. Around their margins were tags of shriveled epidermis and a few small vesicles filled with sero-purulent fluid. There was no involvement of the palms or flexor surfaces of the wrists. Physical examination revealed no other dermatologic changes or associated physical abnormality aside from a moderate degree of emaciation. The tongue was coated in the center, but the tip and margins were not unusually red and the buccal and gingival mucosae appeared normal.

The three other cases were likewise seen in the early stages of the disease when their chief complaint centered about the condition of their hands, which were swollen and painful and showed symmetrical, glove-like involvement of the skin on the backs of them and also the proximal and middle phalanges.

Over these parts the skin presented varying degrees of erythema, pigmentation, vesiculation, crusting and scaling.

In two cases the dermatitis stopped abruptly at a line drawn just above the wrists, while in the third there was a blotchy, purplish red, purpuric discoloration of the skin on the dorsum of the forearms which extended to just above the elbows. This latter involvement had developed in spite of the patient denying any direct exposure of his forearms to sunlight.

One of these patients had an associated dry, scaly, erythematous, pigmented condition of the skin of his forehead, the flush areas of the cheeks, bridge of the nose, sides of the neck and the supra-sternal notch, and another showed localized patches of scaly, pigmentation and slight edema just below the eyes. In both of these cases the skin changes on the face and neck might have easily passed as the result of sunburn.

In none of the four cases was there any other area of dermatitis or pigmentation on the body, but in three out of the four cases, the tongue appeared raw, red and beefy and was the seat, at times, of painful, burning sensations. In two, there was also a marked gingivitis, probably due to dental caries and pyorrhea.

Examination of the City Hospital records, covering the past two years, disclosed twenty cases that had been admitted to the wards with a diagnosis of pellagra. Of these, six gave a history of chronic alcoholism, while there was no note on the records of the other fourteen regarding this habit. Of the six with the alcoholic history, one exhibited a mild nervous system involvement, characterized by auditory hallucinations, while another was acutely demented on admission and died two days later. Five out of the six suffered from varying degrees of diarrhea.

In sixteen of these cases, the diagnosis was based largely on the symmetrical skin changes, while in the remaining four, a suggestive history and other physical findings led to this diagnosis. Five out of the twenty cases died between one and twenty-three days after admission, while the rest, after usually prolonged hospitalization, were discharged cured or much improved.

The etiological relationship which chronic alcoholism bears to pellagra is a question as old as the disease, and one which in spite of unceasing investigation and thought has never been settled to the satisfaction of every one. Since the early part of the sixteenth century when Casal first described pellagra the role played by alcohol in its production has seemed of much significance and has been stressed by many authors. Whether its pro-

longed intake acts directly on the gastro-intestinal tract or causes a metabolic deficiency through an associated inadequate diet, has never been answered. Other theories of direct involvement of the central nervous system, leading to secondary gastro-intestinal and dermatologic changes, have been advanced. On the other hand, there is a possibility that the inferior, contaminated, green liquors sold in this country at present, may contain some toxic substance, such as the aldehyde isolated by Neusser (1) many years ago, from the distillate of fermented, mouldy maize, which may play an important part in its causation.

However, even in the absence of a definite knowledge of the role played by alcoholic leverages in the production of pellagra, it appears evident that chronic alcoholics are all potential pellagrins and are more apt to develop this disease following an insufficient diet than those who are not alcoholics. The case reported above seems to illustrate admirably the statement made by G. M. Niles (2) who said that, "Alcoholic beverages, unless in the smallest and most attenuated form, are poisonous to pellagrins."

Alcohol is not, however, the only substance which has been strongly incriminated in the search for the specific cause of pellagra. From the first part of the nineteenth century down to its close, the maize theory of its causation was supported and developed by numerous investigators, and while the scientific approbation of the world swung to this new hypothesis, the other possible causes of the disease were for a while lost sight of. It was during this period that the term pseudo pellagra, relating to the closely simulating symptom complex seen in chronic alcoholics and in the insane, appeared and was popularized by many articles. More recently since the Maize theory has been proven untenable, the question of the association of chronic alcoholism and pellagra has been renewed and championed by numerous writers who claim that since the symptomology course and neurologic pathology in these cases of alcoholic pseudo pellagra are identical with those seen in the classic examples of the disease, there is no justification in classifying them under another head.

The term ethylic dermatitis was also used in the past to denote the symmetrical skin eruptions seen in chronic alcoholics, but this designation likewise, in the light of present knowledge, has little if any justification. Klauder (3) recently stated in an article on pellagra in chronic alcoholics, that, although various skin diseases may appear in alcoholics, he was unacquainted with any disease meriting this term and that the only distinc-

tive skin disease observed among such patients was pellagra. Sambon (4) had expressed this same opinion a number of years previously.

Under the head of pseudo pellagra we should more properly list such diseases as ergotism, lathyrism, acrodynia, Addison's disease, the syndrome following intoxication from large doses of Trional or Sulphonal (5), localized eczemas, and the exudative type of erythema multiforme. These conditions may closely simulate pellagra and be mistaken for it if all of the differential diagnostic points are not recognized and taken into consideration.

It is interesting to note that many Pella-grologists in the last two decades have called attention to the disappearance of the severe type of pellagic skin changes. Crutchfield (6) commenting on this in an article he wrote on pellagra five years ago, said that, "The skin lesions are becoming milder . . . sharp margination is no longer so pronounced and the pellagrous edema is becoming less and less. Dermatologists are beginning to realize that pellagrous dermatitis may be only a mild erythema or slight pigmentation which may or may not be followed by atrophy." In reviewing the Italian causes of pellagra in 1912, Roberts (7) remarks that "Casal's Collar" was fast disappearing from the Italian pellagrins..

### CONCLUSIONS

From such opinions as have been quoted above, and from the study of our own cases of pellagra, we may conclude that the pellagra seen in chronic alcoholics is a true form of the disease and should no longer be classified among the false pellagras. That the four cases seen in the clinic were early examples of this type whose only symptoms were referable to the skin and mucous membranes. However, had they persisted in their faulty dietary for a sufficiently long period, they would have in all probability passed beyond the uncomplicated stage of a simple skin disease to a more serious condition involving the gastro-intestinal tract or the central nervous system, and when such involvement has taken place, treatment is prolonged, the prognosis is more grave and the final outcome is more dubious. Because of the apparent ease with which such cases can be cured by simple dietary measures if seen and recognized early enough, and because of the marked morbidity and high mortality that may occur if they are allowed to go untreated for more than a short while, it seems well worth while to stress the importance of their early recognition and treatment before more severe changes can develop, resulting in prolonged



periods of hospitalization and incapacity, and often death.

#### REFERENCES

- (1) Neusser—Die Pellagra in Oesterreich and Ru-maenien. Wien, 1887.
- (2) Niles, G. M.—Pellagra. Philadelphia 1912.
- (3) Klauder and Winkelman—Pellagra among chronic alcoholic addicts. Journal of A. M. A. 90: 364-371.
- (4) Sambon—Progress report on investigation of Pel-lagra. Journal of Tropical Medicine 1910, pp 271-305, 319.
- (5) Thomas, W. R. Pellagra and drug intoxication, Lancet, 2:842, 1913.
- (6) Crutchfield. Pellagra with special reference to skin and mucous membranes. Archives of Dermatology and Syphilology 17: 650-658.
- (7) Roberts, S. R. Pellagra. St. Louis, 1912.

#### DISCUSSION

**R. L. Kelly, Louisville:** It seems that pel-lagra is on the increase around and in Louisville. We have seen more cases of pellagra in the last nine months than we have seen in the two years previous. It is noted that during dry seasons pellagra is more common. We have had a dry season and we have had a general depression of business, and lots of people with little work and less to eat, therefore dietary insufficiency.

The etiology of pellagra is obscure. There are several theories, but nothing definite. The most popular theory of most of the pellagrol-ogists is the maize theory; they claim that the corn is deficient in some nutrient principle, or that it contains some toxine which will give cer-tain persons or individuals pellagra, or that dur-ing the storage or after it has been cooked, it undergoes some decomposition and causes the growth of a fungus; or after it is eaten, it will undergo some decomposition in the gastro-in-testinal tract and cause a toxine which may cause pellagra.

The Illinois Pellagra Commission tried an experiment with 120 individuals. They gave sixty a corn diet, and the other sixty a corn free diet for one year. At the end of that time they had pellagra equally in the groups.

Crutchfield five years ago said that pellagra is rarely seen in a normal individual, therefore they must have some underlying condition which will disturb metabolism.

Dr. Rutledge's paper on the alcoholics is very interesting. To say that alcohol per se will cause pellagra I think is rather far fetched, and may leave us in the valley of doubt; the anorexia that is caused from the use of alcohol does occasionally cause pellagra, but that takes us back to dietary deficiency.

Weiss and Mook of St. Louis reported two cases about five years ago, one of a girl fourteen years of age who weighed 190 pounds, who dieted herself, with no noon meal, and morning and evening meals very light, until finally she lost her appetite. In two years' time she was admitted to the hospital. She said the family lived on corn meal mush and molasses. She was admitted to the hospital with a weight of sev-enty-one pounds. She had the typical skin lesions and gastro-intestinal disturbances. She was

put on a diet of high protein and recovered.

The other case was a vagrant fifty-two years of age, who drank all the moonshine he could hold, in the same line with the case in Dr. Rutledge's paper. He had poor food. He was admitted to the hospital and he recovered.

One case was due to alcohol or anorexia due to alcohol and the other was due to starvation.

Pellagra is dependent not only on the skin lesion diagnosis. The mucous lesion of the tongue or gastro-intestinal disturbances or men-tal disturbances may occur before the skin erup-tion. The skin eruption may not always be on exposed surface and it may come first, due to some trauma.

The etiology is unknown. There are several theories, and each has its following.

**W. H. Joyner, Greenup:** While practicing in Southern Kentucky from 1910 to 1924, there was a regular nest of pellagra there. I treated something like fifty cases. Incidentally, if you won't tell on me, I signed something like five or six death certificates.

We had a regular nest of moonshine stills. We made perhaps some of the best, if there is such a thing, and some of the worst moonshine whiskey that Kentucky ever had. We had some chronic alcohol fiends there, but of all the cases that I treated, I can't say one used alcohol to excess. Three out of five of my patients, or approximately so, were the very best of our country women of the poor class, whose mor-ality was not questioned in any way, and they certainly did not use alcohol to excess if they used it at all. Some of them I know didn't use it at all.

One of my cases especially, a case in which I failed to make a diagnosis, was a middle-aged woman who had taken a very active part in the church and was strictly adverse to the use of alcohol. She had no skin eruption whatever. She did have a nervousness and a tendency to loose bowels. I say tendency because it doesn't always produce loose bowels. But I was unable to make a diagnosis. Afterward, she had so many mental conditions that she was taken to the hospital for the insane in Lexington, and they made a diagnosis of pellagra, and she died within a week.

Of all the cases I have seen in both men and women, I have seen none that I could say were chronic alcoholism.

**Arthur T. McCormack, Louisville:** I want to congratulate Dr. Rutledge on the presentation of this very excellent paper. The discussion demonstrates the feeling of uncertainty that we all have about this condition. A few more than a thousand people died with pellagra last year in South Carolina, a few less than a thousand in North Carolina.

Since our large epidemic in 1909, '10 '11 and '12, we have had rather a quiescent period in

which very little pellagra has developed. More recently, in the last three years, there has been a constant increase in the pellagra sections. That increase is coming, just at present, very rapidly. We are having more cases reported every month than the preceding month.

Following this drouth, next year (and the results of the drouth are not represented in the reports this year) we expect to have a very large increase in the incidence of this disease in this state.

The State Board of Health has taken cognizance of the serious scientific questions that have arisen. We have invited the Rockefeller Foundation to co-operate with us in a five-year study of the cause of pellagra, and have reason to think that this will be done in Bell County during the next five years. There are so many unsolved problems in connection with it, that we have felt that if we could have an epidemiologist, a dietitian, the necessary nurses, and the additional scientists that from time to time will be necessary, we could make a research study in this area that would be of real value in the solution of the problem.

The complexity of it is represented particularly well in my own mind. We have a section in the state in which we have more than ten times as many pellagrins as we have in all the rest of the state. The population in this particular area largely involved is the original native population. The same population in adjacent counties, eating the same types of food, having the same habits, having the same environment, do not have pellagra.

In Western Kentucky, where we have the same mining camps and the same agricultural population and the same economic depression and conditions, there is comparatively little pellagra, although it has increased very considerably in Western Kentucky as well as in Eastern Kentucky.

There is no question that these cases when diagnosed sufficiently early are being relieved by several methods. It is interesting to see the different therapeutic methods that have been found valuable in the disease. We have a group of clinicians in Eastern Kentucky who have administered salvarsan to these cases with apparently good results. In another group of cases they have used one of the antacid preparations intravenously, and they seem to get equally good results, provided they are able to add yeast or some of the other simple foods to the diet. Of course, a good many of them get well by the change in diet without any of the medication. It leaves you rather in doubt as to the efficacy of any of the things that have been done beyond the dietary addition, and yet many cases diagnosed equally early and put on broad diet, as they are in the state institutions, do not improve, but go right on with apparently a very

acute condition from which they soon die.

It has seemed to us that the whole matter has, as yet, so many unsolved angles that it is worthy of the serious consideration and study that we have suggested, and Dr. Rutledge's contribution is a very important one. It is important to know how much alcohol is being used in the case of these pellagrins.

I might say that the State Health Department has a plentiful supply of brewer's yeast. We are using at the present time something like a thousand pounds every month in the state, and it is being used by our doctors. It is always available and looks a good deal like fertilizer and tastes like it, I imagine, (I haven't taken any myself) but it seems to be a popular form of the administration of the product. It keeps indefinitely.

**Winston U. Rutledge**, (in closing): I want to thank Dr. McCormack, Dr. Kelly, Dr. Joyner and Dr. Scott, for their interesting discussions of this paper, which I presented as only one phase of the disease entity Pellagra, about which so much has been written since its discovery.

I did not wish to advance the idea that it is due wholly to alcoholism, but it does seem to me that those cases that are chronic alcoholics when they are subjected to a deficient diet are the most apt to develop pellagra.

Dr. Fordyce years ago called it "old man's pellagra" because in the City Hospital in New York where he was attending Dermatologist, great numbers of these debilitated old men, came in with that history, and they all had the typical skin changes of pellagra.

It seems to me from reading the literature that the truth of the matter is that nobody knows the etiology of pellagra. There have been books written on the etiology of this disease, and there are almost as many different theories of its causation as there are pages in the books. In my opinion the work done in the last ten years by Goldberger and Tanner, of the U. S. Public Health Service, was about as scientifically conducted and about as convincing as any work done along that line. Their original theory was that pellagra was due to a protein deficiency, but subsequent work in the state institutions of the South seemed to show that that was not the entire thing, because when quantities of protein adequate to maintain physical metabolism were fed, these patients still developed pellagra. In searching around for the possible cause they tested the effects of soybeans, casein, buttermilk, milk, lean meat, tomatoes and tomato juice, in preventing or curing pellagra cases. One of the last things they struck on was the use of brewer's yeast, which they gave in small quantities and which was most effective in preventing and curing cases of pellagra. They have proposed what they call



the "Pr" factor, the pellagra preventive factor, which they think is more concentrated in yeast than in any other food or substance which has so far been discovered.

Their work in the South showed that when from one-half to an ounce of dried brewer's yeast was given daily, most of the pellagrins were cured and also that no new pellagrins developed while that diet was maintained.

## SYMPOSIUM ON OBSTETRICS AND GYNECOLOGY

### ECTOPIC PREGNANCY\*

HARRY A. DAVIDSON, M. D.

Louisville.

Before the age of aseptic abdominal surgery the most tragic accident that could occur to a woman was a ruptured misplaced pregnancy. No one had the courage to open the abdomen and stop the flow of life-stream, and the poor unfortunate women were allowed to bleed to death. In 1876 Perry published statistics of five hundred cases with a mortality of 67.2%. Lawson Tait was the first to have sufficient courage to operate for a ruptured ectopic pregnancy in 1883, and although his first patient died, he saw a great future for the operation. In the next forty operations for similar conditions he had only one death, which was a remarkable record.

The records for all extra-uterine pregnancies in the Norton Memorial Infirmary, Louisville, Ky., for the past ten years are submitted with this paper. There are sixty-two cases reported as ectopic gestation at the time of operation, all of which were operated upon by the various staff members with only one death, a mortality of 1.61%.

Compare 1.61% with 67.2%; the mortality of unoperated cases collected by Perry and we get a vision of the thousands of women who have been restored to health and happiness since 1883, and the unnumbered thousands of unfortunate women who will be victims of some form of ectopic pregnancy in the future.

Statistics seem to show that for every three hundred women who will have a pregnancy located in the uterus, there will be one woman whose impregnated ovum will lodge in one of the various locations called extra-uterine. Many theories have been advanced to explain ectopic gestation and probably there are several causes. If we accept the most plausible causes, such as stricture of the tube from outside pressure, obstruction of the tube from within, including the results of gonorrheal and other inflammations; accen-

sory tubes or tubal diverticula; decidual reaction in the tubes, etc., then we must admit that there will be little hope in the future to eliminate the causal agents. This being true we must always expect a certain number of misplaced pregnancies in the women of every community. Great stress, then, should be laid upon the proper treatment of these cases.

In studying the charts of these sixty-two cases we note that in the vast majority of them the operator was not specific as to the location of the pregnancy. Most of the common varieties are found here, such as tubal abortion, rupture of the isthmic portion, the ampullar portion, also one case of interstitial or cornual pregnancy. There were no cases of ovarian, abdominal, intraligamentary or uterine diverticulum pregnancy. Rupture of the tube and tubal abortion were the two commonest forms. This series proves that ectopic pregnancy is the commonest in primiparae, and those who believe that gonorrheal salpingitis is the chief cause of ectopic pregnancy point to this fact as proof because gonorrhea is the main cause of one child sterility. The average age of these sixty-two women was 30.6 years, ranging from twenty-one to thirty-nine. Two thirds of the cases occurred in the decade from twenty-four to thirty-three years, thus showing a majority of the cases in the first ten years of married life.

The careful study of pathological specimens in the laboratory has revealed the fact that a certain number of cases which symptomatically and clinically seemed to be typical cases of ectopic gestation were negative because of the absence of a fetus, or chorionic villi or decidua. After a careful study of the sixty-two cases presented it was found that in twenty-two of them the operator did not mention the presence of a fetus and did not have a microscopic examination made to reveal the presence of chorionic villi or decidua. These patients were operated upon before the hospital required a pathological study of all tissues removed. The symptoms and physical findings of these twenty-two cases were on a par with the forty cases retained, but were excluded from the final report because the pathological findings were inadequate. Of the remaining forty cases, thirty-one were positive, that is presented a fetus or the microscopic sections of the tubes revealed the presence of chorionic villi or decidua. The other nine patients had symptoms typical of extra-uterine pregnancy and were so diagnosed before operation and were so considered after operation, until repeated examinations of microscopic sections proved they were not extra-uterine pregnancies.

\*Read before the Jefferson County Medical Society.

Hemorrhagic salpingitis and hemorrhagic ovarian tissue were the causes of hemorrhage in the nine cases reported negative for ectopic gestation.

In the days of Lawson Tait it was taught that practically all abdominal hemorrhages in women during the child-bearing period were ruptured ectopic pregnancies, but the careful microscopic study of all pathological specimens has proven this teaching inaccurate. In this series we are not able to report any cases of lithopedion or adipocere, nor were there any far advanced pregnancies. This would seem to show that all such cases are recognized early and operated upon immediately. This no doubt is the chief factor in reducing the mortality and will account for the 1.61% mortality of all cases considered and no mortality in the thirty-one positive cases of extra-uterine gestation.

Free blood in the abdomen was found frequently and this no doubt caused the low erythrocyte count in nearly all cases. A high leucocyte count was also found in a large majority of the cases and this was probably caused by the peritoneal irritation due to the presence of free blood in the pelvic cavity.

In reviewing the symptoms present in the cases studied, irregularity of the menstrual flow with a short period of amenorrhea followed by "spotting" was the outstanding symptom. Pain in the pelvis, usually referred to one side, was next in importance. Fainting attacks accompanying the severe paroxysms of pain were very suggestive. The early symptoms of pregnancy were not always present due no doubt to the fact that rupture occurred early at the fifth, sixth, seventh or eighth week in many cases.

In a few cases the diagnosis was confused with abortion of an intra-uterine pregnancy and curettage was performed for the purpose of removing uterine secundines.

A reliable test for early pregnancy, either intra-uterine or extra-uterine, should be a great aid in doubtful cases and especially would aid in differentiating salpingitis from tubal pregnancy. The Aschheim-Zondek reaction is probably the most reliable test known. It has for its basis the presence in the urine during pregnancy of large amounts of anterior pituitary hormone. When urine containing this hormone is injected into immature female mice or rabbits, certain reactions in the ovaries and uterus develop within one hundred hours which may be recognized by the eye and also the microscope.

The reaction has been obtained as early as three days after the expected period and the percentage of error in the tests is very low, about 1.5%.

The author is able to present in this series one case of repeated ectopic gestation, the second tube becoming the site of a pregnancy about three years after the other tube had been removed for the same condition.

The treatment in practically all cases reported was immediate operation as soon as the diagnosis was suspected. A study of the five hundred cases reported by Perry in 1876 could lead to but one conclusion, to temporize is fatal. The chief factors in producing a low mortality in the treatment of extra-uterine pregnancies in the author's opinion are: first, immediate operation, no temporizing; second, rapid operating; this means removing only the ectopic pathology and not attempting to remove other and remote pathological conditions; third, the leucocytosis nearly always present, tends to keep down infection; fourth, transfusions of saline or blood can be given quickly when indicated.

#### SUMMARY

1. Extra-uterine pregnancies from the nature of their causes will probably always be a source of anxiety to the obstetricians and gynecologists.

2. From the past statistics we may expect one misplaced pregnancy for each three hundred uterine pregnancies.

3. Formerly all cases of tubal rupture with free blood in the peritoneum were considered ectopic gestation, but a careful examination of all pathological specimens under the microscope eliminates a certain proportion—in this series, nine out of forty.

4. The Aschheim-Zondek test no doubt will be a great aid in the future in determining the presence of early pregnancy.

5. Bleeding from the uterus after a missed period, accompanied by pelvis pain and symptoms of shock are three important symptoms.

6. The best treatment is immediate operation with proper hospital facilities.

7. The mortality of unoperated cases in the period preceding 1883 was shocking, 67.2%. The mortality of operated cases during the past decade is very low and surgery has achieved a remarkable triumph in the proper care of extra-uterine pregnancies.

**Blood Supply of Human Parathyroids.**—The blood supply to the human parathyroids, particularly the collateral blood supply, was studied by Curtis in twenty-five cadavers immediately preceding necropsy. Abundant anastomoses were demonstrated between the thyroid arteries, especially the inferior, and the arteries of the larynx, trachea, esophagus, and the surrounding fascia. The thyroid arteries also anastomose with one another and across the median line, particularly in the region of the isthmus.



## STERILITY\*

DAVID M. Cox, M. D.

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Sterility ranks high as a social problem and has made considerable progress during the past several years. However, there are still many unsolved problems for the zealous investigators to study.

As etiological factors, anatomical lesions, received more attention in the earlier studies, and a great aid to diagnosis was brought about with the introduction of tubal insufflation by Rubin. Another great advance was the development of post-coital examination, determining the male responsibility, the essential mechanism of insemination and the effect of abnormal cervical secretions on spermatozoa. A third contribution was (1) the study of metabolism, which has a direct influence on the degree of fertility, and (2) the progress in endocrinology, although the relation of the endocrins to sterility is still very indefinite.

Numerous causes of sterility have been defined, and practically always occluded tubes heads the list. Male responsibility is next with cervicitis and endocrine imbalance in third and fourth places respectively. Multiple causes are found in over 90% of cases.

A correct diagnosis depends upon a thorough investigation of the anatomical and physiological features that affect the transit of spermatozoa from the testes and the ovum from the ovary to the Fallopian tube where they meet. Also of the fertilized ovum from the Fallopian tube to the uterus. Male pathology will not be discussed except as we find living and actively motile spermatozoa in the cervix.

A history should be carefully taken to determine past trouble that might have affected the reproductive organs. Menstrual history is important to determine degree of development and variation from normal.

A thorough physical examination should be made of both husband and wife, taking special note of any foci of infection, general development and endocrine pathological manifestations. Urine and blood examinations are made, and basal metabolism when there is any suggestion that it might be abnormal.

During pelvic examination, note should be made of development of the vulva, amount and distribution of hair, condition of the cervix, position and size of the uterus, its relation to the cervix, condition of the adnexa and the reaction of the vaginal secretions.

When there is no recent history and no

sign of inflammatory disease, patency of the tubes may be determined during the first examination. This can be done in the office with very little discomfort to the patient. It is most important to take every precaution to sterilize the cervix by removing the secretions and applying a reliable antiseptic. A tenaculum is placed on the cervix, preferably on the posterior portion, to keep it from moving about during the procedure. Then a metal canula, equipped with a rubber stopper is inserted through the cervix and the rubber portion held tightly against the cervix. The vagina is filled with sterile water so that, if the gas escapes around the canula, it will "bubble up" through the water. I shall not give a detailed discussion of the various gases and types of machines used for this purpose, but only say that the simpler apparatus, as long as it is safe and reliable, is the best to use. The gas pressure is brought up to 100 mm of mercury and if there is no obstruction, the mercury falls immediately, if it falls slowly, there is partial obstruction or a leak in the apparatus. If the mercury does not fall, pressure is increased to 150, then 200 mm of mercury and if there is no drop at this point, there is complete obstruction.

When air passes through the tubes and enters the abdominal cavity it passes to the upper part of the cavity as soon as the patients stands erect. About 90% of these patients complain of pain in the shoulder.

If no absolute cause of sterility has been found, an appointment should be made to determine the viability of the spermatozoa. Instructions should be as follows: The wife is to remain on her back for 20 minutes after completion of the coital act, not visit the toilet and report at the doctor's office within one hour for examination.

The following routine is recommended: A bivalve speculum is inserted, the vaginal pool is aspirated into a pipette and placed on a slide for microscopical examination. Then, in the same manner, material is obtained from the external os, from middle portion of cervical canal, and from as near the internal os as possible. Instruments used are warmed and kept at body temperature throughout the examination.

The relative number of dead and actively motile spermatozoa is determined in each specimen. Migration of normal semen seems influenced solely by the condition of the cervical secretions. Spermatozoa should reach the level of the internal os within an hour. If they are active at the external os and have not reached the internal os, the cervical mucus is unfavorable. Estimation of semen efficiency requires experience and study and depends upon a careful collection of the

\*Read before the Jefferson County Medical Society,

specimen, with accurate observation of amount, normal sperm cell content, and the vigor and persistence of motility. This work is effectively done by the gynecologist as a correlated part of the sterility examination. If the cervical specimens show only a few actively motile sperm cells, a condom specimen should be examined for comparison.

Certain individuals have a higher degree of fertility than others. When neither party shows any conspicuous pathological condition, it is not an uncommon occurrence for them to separate, remarry and both prove fertility by their new mates. We can explain this only by theory, either there is some subtle incompatibility or, more probably, there are varying grades of fertility which may change from time to time, depending upon circumstantial factors. Underdevelopment due to endocrine upset at time of puberty leaves the reproductive organs in a state of hypoplasia, and usually these individuals have low degree of fertility.

Some experimental work has been done on the matter of diet. When animals are fed on a diet containing no vitamin E they become sterile. If there is a deficiency, their degree of fertility is lowered. The diet of the general American public is so varied that vitamin E is nearly always present, so that this probably will be of little or no clinical benefit.

Treatment consists in: (1) Trying to secure and maintain good health. (2) Supplying the necessary gland therapy and vitamins if need is indicated. (3) Treating the gynecological or urological lesions or lesions that contribute to the sterility.

About one-third of all sterility is due to the male, and about one-fourth of these defects offer hope of responding to treatment. Relief in 20% to 50% of the women can be expected if treatment is carried out persistently. The lowest rate of cure is obtained in cases of salpingitis, fibroids and infantilism, while much better results are obtained in cases of stenosis of the cervix, endocervicitis, anteversion, and retroversion.

According to the opinion of the Council on Pharmacy and Chemistry of the A. M. A., the barbitol derivatives produce restlessness and excitement in some patients. Accordingly, barbitol, amytal, and similar preparations should be given with some discretion, especially when administered as a preanesthetic treatment either to induce quietness of the patient or to offset the toxic effects of a local anesthetic. The surgeon will be wise if he tests the susceptibility of the patient to barbitol derivatives prior to operation done under local anesthesia.

## SOME OBSERVATIONS ON CESAREAN SECTION\*

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Cesarean section during recent years has been the subject of voluminous literature, and especially since De Lee's report of 807 laparotomies with only 9 maternal deaths, this method of delivery has assumed a popularity the results of which do not begin to justify the enthusiasm. As Miller aptly points out, "the mortality of the average operator and the average mortality of all operators are much truer indices of the value of a given procedure than are the brilliant results of a single skillful surgeon or a single well organized clinic." With a general maternal mortality of 10 to 12%, it therefore leaves us to perform this dangerous operation only after careful consideration and mature judgment, always realizing that there are very few absolute indications for this operation.

That the operation is much abused is shown in listed indications which Miller discovered on charts which he casually observed. Certainly there is no justification in such indications as he quotes: Inertia, dystocia, anencephalus, abdominal pain, wrecked health, patient's personal desire, epilepsy and low grade mentality. These latter two were possibly operated upon in order to sterilize the patients, but the risk is much less if delivery per vaginam is instituted and sterilization is performed subsequently.

There are, of course, certain definite indications, but even these are seldom absolute. Obstructing tumors and extreme degrees of pelvic contraction are the only absolute indications, but these conditions are extremely rare and are usually quite obvious. The greatest abuse of the operation occurs in cases of moderate contraction where a diagnosis of cephalo-pelvic disproportion is made. Statistics uniformly show that 75% of contracted pelvis deliver without assistance, while at least half of the remaining need intervention per vaginam rather than abdominally. The existing conditions that must be studied besides the pelvic measurements are the size of the head, the position of the fetus, the character of the contractions, and the malleability of the head. Usually only after a test of labor can the proper method of treatment be determined. The important point, and one which is much too often overlooked, is the fixation or engagement of the head. In a primipara, any floating head at the onset of labor, should be considered a Cesarean possibility, and in such cases special

\*Read before the Jefferson County Medical Society.



care should be given the patient to prevent anæmia and fatigue. After a certain length of time, and individualization is very important here, the head has not descended, the case is a likely one for a Cesarean. As soon as it is decided to be the necessary procedure, the operation should be done without delay. A number of fatal cases undoubtedly occur because the operation was delayed until a more convenient hour. After the first five or six hours of labor, each hour of delay increases the mortality rate, while the danger is also directly proportional to the length of time the membranes have been ruptured; and the number of vaginal examinations. If mechanical induction of labor or attempts at delivery by forceps or craniotomy have been resorted to, the risk from Cesarean section is so great as to be prohibitive.

Eclampsia until recently was looked upon as an indication for Cesarean section. Holland has shown that only accouchement force offers a greater mortality rate than abdominal delivery. There are some cases of antepartum bleeding that undoubtedly require the operation, but again the time of election is important, the patient should have fluids and blood replaced and present herself as a good surgical risk before the operation is performed.

Besides these fairly frequent indications, there are various others, such as cases that have had extensive repair, obstructive fibroids, a very rare condition—prolapsed cord only when the fetus is in good condition, certain cases of tuberculosis and heart disease perhaps and contraction ring. Contraction rings which cannot be relaxed are very formidable and sometimes offer themselves as absolute indications.

Cesarean section presents not only an immediate danger but an ultimate one as well. At subsequent pregnancies there is the added risk of a rupture and for that reason sterilization after two or three sections is generally advised. Different authors give a wide variation in the incidence of ruptured uteri, but it is thought to be about four and one-half per cent of these patients die. The rupture occurs toward the end of pregnancy, or early in the first stage of labor as a result. The presence of infection after the previous section increases the incidence of rupture but the absence of infection in no way confers an immunity to rupture. It is because of this danger that it should be insisted that all patients having had previous Cesareans should be confined in a hospital. If the case is one of contracted pelvis, of course another section is necessary. If the previous cause does not exist, such as placenta previa, then labor may advance under careful observation, and delivery completed by forceps as soon as the second stage is reached. Even though a pa-

tient delivers per vaginam subsequent to a Cesarean, there is no assurance that a rupture will not occur subsequently; it is generally agreed that sterilization should be performed after two pregnancies following a Cesarean.

In recent years, because of improved technique and the popularization of the method of Beck and De Lee—the transperitoneal section, or as De Lee says the laparotrachelotomy—it has been assumed that the dangers of the operation have become less and consequently the incidence has increased, with no decrease in the maternal mortality. True it is that the transperitoneal section enables us to operate more safely after a trial labor, but by the enthusiasm of some of its proponents, it has unfortunately led a number of operators to abuse it. The transperitoneal section, even though it undoubtedly is less dangerous than the classical section, after trial labor, nevertheless, is not safe in neglected cases where infection has occurred, and where the patient is a poor risk for any operation. Williams continues to advocate the removal of the uterus if a section must be done on a neglected case, but if the case is handled correctly throughout labor, a condition such as this should not exist.

Miller has made a very timely observation. He asserts that Cesarean section as a rule is performed to save the life of the mother and child, but if the lives of the two conflict, one should not hesitate a moment to subject the child to greater risk, if the mother will be safer. Many sections have been performed as a last resort to save a child, and in doing so many mothers have been sacrificed.

This discussion has chiefly brought out the dangers and realization of the gravity of Cesarean section. The conclusions to be drawn are:

1. Cesarean section when performed with the proper indications and at the proper time in relation to labor and the condition of the patient is a valuable and life-saving procedure for mother and child.
2. Cesarean section performed late in labor or after attempts at delivery is a hazardous and dangerous procedure both for mother and child.
3. We should not be guided too much by the enthusiasm and results of individual operators because outside of the chosen few, the mortality from Cesarean section has not improved.

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Honorable Elihu Root, New York, Secretary of State in the administration of President Roosevelt, has been elected honorary president of the National Society for the Prevention of Blindness. The post was made vacant by the death of William Howard Taft, Chief Justice of the United States Supreme Court, who had served the Society as honorary president from 1930.

## PRIMARY POST-PARTUM CERVICES IN PRIMIPARA\*

WM. H. EMBRICH, M. D.

Louisville.

If every hospital required follow-up reports on all obstetric work, specifying: Complete recovery, clinical or partial recovery, no patient with any degree of cervical tear could be honestly listed as completely recovered. Surely no one at the present time fails to have his post-partum patient return in six weeks for a final examination; upon which occasion there is usually thrust upon his gaze a vision hardly calculated to enhance our professional morale. A bilateral or a stellate tear, well defined tissue necrosis which is a fertile pabulum providing rich pasturage for staphylococci, streptococci, gonococci and other bacteria, is the picture. There is also associated lymphatic absorption, a tender pelvis, vascular engorgement, purulent discharge, and varying degrees of serum drainage which latter is productive of nothing other than surgical dehydration; all of this a result of traumatic cervical tears and associated infection.

The remarks are only the threshold of a vast subject.

The indications for primary cervical repair are quite well known to all of us. The next and only remaining problem is the means and the method.

(Presentation for inspection—Post-Partum Vaginal Speculum.)

### THE TECHNIQUE OF PRIMARY CERVICAL REPAIR

Under thorough aseptic precautions, the vaginal tract having previously been prepared according to indications, namely: If an active vaginitis or cervicitis is present, I advocate and use hychlorite douches days and weeks ahead of delivery. As soon as the patient reaches the hospital she is given an enema, shaved and if indicated a hychlorite douche. Pains are timed. Vaginal examination is made. Patient is moved to the delivery room well in advance of delivery. I do not believe in waiting until the last minute for these reasons; You cannot have your patient under proper control, you do not have time to "scrub up" properly. I want the nurse properly scrubbed, the sterile goods and instruments properly spread. I do not like haste. Good team work makes obstetrical work just a little less trying.

The pubic region, thighs, buttocks and anal area are painted with two to four per cent mercurochrome solution. Mercurochrome solution is introduced into the vaginal tract with a bulb syringe or a swab is used.

The patient is delivered under an anesthetic.

If the perineum is torn, which it most often is, bleeders are tied and sutures are placed out not tied, just fastened with a nemostat. The placenta is delivered. Ergot alone or combined with obstetrical pituitrin is given hypodermically. The anesthetist is asked to watch the fundus.

The post-partum mechanical speculum is placed. There are times when cervical tears bleed profusely. Then the suction pump is used, until hemorrhage can be controlled by sutures.

The very first tissue presenting is the vaginal surface of the anterior cervical lip. It is markedly edematous, dark blue in color, and the margins are smooth. The posterior lip is retracted, hard to find. It is thinned, irregular, and beautifully macerated. The gentlest handling serves best because the traumatized cervix is very friable. Using medium length sponge forceps (which are unsatisfactory because sutures are occasionally passed through the fenestra, but because they do less damage than anything else that I have at this time), the cervix is picked up and the margins followed all around until the entire circumference is found. This is easier said than done because the anterior lip protrudes and the posterior lip is high and retracted and will not come down.

Cervical tears are in the shape of an "L", a reversed "L" on the opposite side, the end of the horizontal bar right at the margin of the os proper. Number 4-40-day chromic catgut interrupted sutures are placed from bottom of tears right up to the os proper. The thick anterior and the thin posterior cervical lips are carefully approximated. No sutures are drawn tight. I have failed at times to place sutures close enough to the small os. The result in those cases has not been overly pleasing.

Iodoform or other antiseptic gauze strip is placed snug against repaired cervix and out of vaginal orifice for twenty-four hours.

The judicious administration of fluid extract of ergot is absolutely necessary, one-half to one dram doses every two hours, to prevent clot formation. The passage of a clot would tear out practically all sutures thereby completely undoing the entire surgical repair.

Occasionally I replace the antiseptic gauze in the vaginal tract if conditions warrant. This can readily be done by drawing patient diagonally to edge of bed, placing one foot on edge of bed, the other foot on bedside table, carefully using bivalve speculum and headlight.

The clinical incubation period for vaginal bacteria is five days. At this time the lochia becomes offensive. This is the time when lymphatic absorption would be disastrous, repair or no repair. For years I have had

\*Read before the Jefferson County Medical Society. 7



post-partum cases douched with hychlorite solution from the fifth day on.

Examine your patient two months later and decide for yourself.

**The Immediate Benefit.** There is less post-partum flow, especially is it noticeable that the first 24-hour lochia is reduced. In none of our primarily repaired postpartum cases have large vaginal clots been evident. The lying-in period is productive of quicker convalescence. There is the same comparative difference between a primarily repaired post-partum case and one not repaired as there is between a thin wiry post-operative patient who is ready to leave the hospital in ten days, as compared to the adipose asthenic type hospitalized for twenty-one days. In other words, the morbidity is very definitely reduced.

**The Ultimate Benefits.** Leucorrhœal conditions are less likely to result; less troublesome if present and respond more promptly to treatment. Erosions and excoriations not previously present are less likely to develop and if present, heal more promptly.

Since 90 to 97 per cent of cervical cancers are implanted on lacerated cervixes, the primary repair of post-partum cervixes is an invaluable prophylactic measure against future malignancy.

**Special Observation.** For years I have chemically tested the reaction of the cervical mucosa of gynecological patients and find it consistently alkaline. I have likewise at the same time, tested the vaginal mucosa of the same patients and invariably find it acid, sometimes highly acid. An everted alkaline cervical mucosa lying in a pool of acid mucus day in and day out and indefinitely, is ultimately destined to undergo inflammatory reaction and organic change; the final results one can readily visualize.

#### **Failure of Breast Feeding in First Month.—**

The conclusion Pooler draws from this examination is that the real deciding issue in the whole of these cases was the return of the mother to her domestic duties and worries. There were other conditions which might have caused some trouble, but he regards them as auxiliary only in bringing about the early weaning in this group. To some extent he has had to revise the views he expressed in 1928. A longer rest in bed was not effective in three cases. The effects of poor feeding of the mother and the disturbance of the baby's nervous system do not loom large in the analysis. Too frequent feeds seem to be sometimes a result rather than a cause of failure. He does not, however, ignore their influence while stressing the dominant importance of the early return of the mother to her domestic duties.

## **THE TRAUMATIZED CERVIX\***

CHARLES W. HIBBITT, M. D.

Louisville.

Every birth, every abortion and miscarriage, every dilatation, or instrumentation of the cervix produces some injury to this organ, slight or extensive and thus renders it a fertile field for a pathological condition to develop. About 40% of those women who go through the above do develop some pathological condition as a result.

There are so many conditions which may involve the cervix that it indicates the importance of this structure, and when we consider the great amount of suffering, misery and finally death which result from conditions which have their origin in this small area, it seems that there rests the responsibility amongst us to teach and preach what pain, hemorrhage and discharge may mean and to implore our patients to have early and periodic examinations of the cervix and pelvic organs. And it is our duty also to be able to recognize conditions which may be remedied before the danger line has been passed.

Periodic examinations are recommended to all, but rarely do you hear of periodic examinations of the female generative organs; yet diseases originating in the cervix are responsible for many deaths, and with early recognition of pathological changes immediate and proper treatment might reduce the number of fatal cases and give to women many years of useful life.

From practical experience and study we know that the pathological cervix is almost always the result of infection from above or below; instrumentation and labor. The traumatized cervix may not be recognized for months or years after the original cause has produced the damage, yet all this time many cases are gradually assuming a much more difficult problem to deal with; and possibly a most serious one. The traumatized cervix when discovered should be given immediate attention and investigation, for with delay there may develop cystic degeneration, endocervicitis, or malignancy; even though it may be a slight tear with eversion or erosion it has a most important bearing on the future health of the cervix.

The first problem is to study time of trauma, character and extent of trauma, and the degree or progress of the pathological condition. Practically all cervixes are traumatized to a greater or lesser degree as result of labor and this opens the avenue for infection. Most of these cases are discovered when patient is having vaginal ex-

\*Read before the Jefferson County Medical Society.

amination for some cause not with special reference to the cervix itself. The two symptoms which cause the patient to seek advice are hemorrhage and discharge.

The bleeding may be sudden or profuse or slight and only after exertion, trauma or intercourse. The discharge, which may be of various degrees of consistency, color, or amount may date from the first trauma or infection when it appeared and was thought by patient to be the usual and healthy sequel of labor or abortion. Lacerations of the cervix of an extensive character are accompanied with more or less permanent structural changes either in the cervical mucous membrane, the cervical walls or both. A one or two sided tear if marked may lead to eversion of cervical mucosa; this becomes infected and endocervicitis results. Erosion and eversion however may develop without tears. In all pathological states infection, chronicity and irritation are almost constant factors.

The first to consider is endocervicitis. This is a very common condition and often not recognized and usually not treated as thoroughly as it should be. It may be a decided factor in producing sterility, adnexal disease and certainly predisposes to cancer formation by reason of chronic irritation.

Leucorrhea is one of the most frequent manifestations of cervical disease, its presence is not considered of much consequence by many women until it is associated with other symptoms; but when this condition becomes chronic a mixed infection is now present and this infection is carried into the glands. The ducts of the glands afford good hiding places and here the gonococcus with others remain temporarily inactive. Any trauma about the cervix, even after some years, will stimulate this latent infection to activity.

The inflammatory conditions and their products (of endocervicitis and cervicitis) have been the subject of much study, and none more important than the subject of focal infection.

Curtis has shown that in endocervicitis many varieties of bacteria are encountered, as colon bacilli, gonococci, staphylococci and streptococci, often of very different strains. De Muench (1) of Mayo Foundation, after years of investigation, reaches the following conclusion: "That the cervix is predisposed to act as a chronic focus. The cervical streptococci have decided affinity for joint tissue." Her work and study gave conclusive evidence that the cervix is an important factor in focal infections.

The care of chronic cervicitis varies with the pathological condition found. A variety

of treatments have been used, chemical cautery, radium and surgery. All have their indications and limitations. We have found the results from cautery or radium fairly satisfactory. In some cases where slight discharge persists from a small area after cautery is used, a few applications of the old time-honored remedy unguentum or iodine, nitrate of silver, or touched with cautery again will remove the remaining discharge. The electric cautery has given excellent results in cystic disease, endocervicitis, erosion and eversion and I cannot help but recommend it, on account of our results. This method of treatment gives practically no pain or discomfort and can be used in the office. A second or third application may have to be made in some cases, but the results are uniformly good.

The care of cervical lacerations may be either medical or surgical. Repairs may be made of tears of moderate or severe degree, but then only if complicated or associated with symptoms. An uncomplicated laceration of mild degree is best treated by leaving it alone. If repair of laceration is the decision, trachelorrhaphy should receive first consideration if patient in child-bearing period, and amputation of cervix second consideration. After child-bearing period the indications are reversed, amputation first consideration and repair second.

We have only one known way to combat the development of cancer of cervix and that is by recognition of the process in its earliest stage or better to identify those lesions which are known to be forerunners of malignancy.

Proper understanding and recognition and correction of some of these early changes may greatly reduce the mortality. It is in this early stage the diagnosis is most difficult, and it is in this stage the diagnosis is most important. When the cervix presents any departure from normal, malignant disease must be definitely and certainly excluded; for there is a period of time unknown at present wherein there is an ending of the precancerous stage and the beginning of a definite malignant change. It is further interesting to note that such changes nearly always occur in the presence of a chronic inflammation.

The constant bathing of an eroded and everted cervix in the purulent acid secretion of the vagina may be an important factor in the cause of malignancy. The diagnosis of advanced cancer is comparatively easy, but every single case of suspected or perfectly plain cancer should have a specimen removed for microscopic study. The effort to make the cervix as near normal as possible after delivery is a responsibility we must assume. If this is done puerperal



sepsis and cancer may be prevented and in addition the woman may have comfort and long life.

#### SUMMARY

1. The chief cause of cervical disease are labor and venereal diseases.

2. Conditions of cervix are easily recognized if proper, careful examinations are made.

3. The cervix is peculiarly susceptible to infections for a long period.

4. A diseased cervix if left alone, means continued irritation and chronicity, which will have an ill effect upon the general health, influencing cancer formation, infection in joints, kidneys or other structures.

5. Erosion or eversion or both associated with endocervicitis yields readily to cautery.

6. Eversion associated with extensive lacerations repair.

7. An eroded or everted cervix which bleeds on touch or manipulation. Examine section of tissue before outlining treatment.

8. Early malignant cases or borderline cases, radical surgery or radium. Late cases—x-ray and radium.

9. Use the biopsy forceps and microscopic examination of tissue early and we will have fewer fatal cases of malignant cervix.

#### REFERENCES

- Dunlap, Elbert: Texas State Journal of Medicine, pg. 780, April, 1928.  
 Graves. Lacerations of Cervix—Third Edition.  
 Crosson: Diagnosis of Carcinoma of Cervix Uteri, Sixth Edition.

In a recent outbreak of botulism in North Dakota, several interesting observations were made, one of which was the fact that the universal purifier, heat, appears to be of little avail in the destruction of the very active toxin of that anaerobic saprophyte which grows not only in sausage, where it was first observed, but in all sorts of meat, fish, preserved vegetables and even fruit. A case was reported where the spores produced in some paratubulinus-infected, home-preserved pears were shown to survive two to three hours of boiling. The cold pack or even open kettle methods of preservation so much used of late in home canning seem to cause this very serious food poisoning. The active poison is all the more dangerous because frequently there is no detectable change in the food so infected to act as a warning.

## THE TRAUMATIZED CERVIX IN OBSTETRICS\*

EDWARD SPEIDEL, M. D., F. A. C. S.

Louisville.

In nulliparae the external os is circular in outline. After the birth of a full term baby it becomes a transverse slit and serves as a positive indication with the absence of the fourchette and the rugae in the vagina and the presence of the carunculae myrtiformes, that the woman has had a child. This condition of the cervix is present even after absolutely normal and spontaneous labors, where no interference has been practiced. It seems that the cervix dilates and retracts as much as possible and then gives way at its weakest point. As there is less muscular tissue at the sides of the cervix than in other portions, these areas always tear so that an unilateral or bilateral laceration occurs. This has been so well recognized, that French Obstetricians near full dilatation incise the sides of the cervix as we perform prophylactic episiotomy. It is claimed that lacerations are more frequent on the left than on the right side and of greater extent in posterior than in anterior vertex presentations. In posterior presentations the laceration is most extensive on the side to which the occiput points, on the right in R. O. P. and the left in L. O. P.

Other factors of course contribute to the degree and extent of laceration. Premature rupture of the bag waters, with the hard head instead of the elastic water bag as the dilating medium results in greater degrees of laceration.

Overgrowth and premature ossification of the fetal head, forceps application, dilating bags, especially if long continued traction is made all contribute to the degree of laceration. It should be remembered that continuous traction on a bag in the cervix produces an anemia of the tissues making them very liable to laceration, consequently when such bags are used intermittent traction should be used. So called manual dilatation of the cervix is in most instances connected with a great deal of tearing of the tissues.

In placenta previa the abnormal location of the placenta in the lower segment of the uterus makes the cervix unusually friable and easily subject to tears with often profuse and almost uncontrollable hemorrhage. A more extensive laceration of the cervix than usual may be anticipated if the uterine contractions of the second stage in vertex presentations are followed by more or less of a bloody discharge.

\*Read before the Louisville Obstetrical Society.

Post partem hemorrhage due to the severance of a blood vessel by an extensive laceration of the cervix, may be diagnosed, if there is a steady thin stream of bright red blood immediately following the birth of the child and not checked after the expulsion of the placenta by a firmly contracted uterus. Inspection of the cervix of course is the readiest way to determine the degree of laceration. This can be readily accomplished in almost any surroundings if the posterior vaginal wall is drawn down by a retractor, while an assistant pushes downward and forward on the fundus of the contracted uterus, thus bringing the cervix nearly to the mouth of the vulva.

Immediate or intermediate repair of the cervix is now advocated by many obstetrical authorities in consequence of the many annoying and painful after-results of a neglect to give such lesions attention.

To Dr. Arthur T. McCormack belongs the credit of being the pioneer in advocating this procedure as he read a paper before the Kentucky State Medical Association on this subject as early as 1901. Naturally his ideas were too radical for the obstetricians of that day and the discussion that followed was almost entirely against such a procedure.

Depending upon the extent of the laceration there will follow more or less scar tissue in a tear, distorting the cervix and at times even extending up into the broad ligaments. Eversion of the cervical mucosa and erosion due to the constant immersion in the abnormal leucorrheal secretion will follow with cystic degeneration in the end. Finally in after years such a cervix becomes a potential area for the development of cancer.

For many years repair of the cervix after labor was only advocated in case of hemorrhage due to a severe laceration. It was always feared, that such interference immediately after labor would invite puerperal infection. It may well be said that this opinion still holds good in home deliveries. With the impossibility of having aseptic surroundings and conditions, poor lighting facilities and inadequate help, it is certainly attended with a great deal of risk to attempt such a procedure in the ordinary home. In well equipped hospitals routine inspection and repair of cervix should become the rule, and the only question that need be settled is as to whether immediate or intermediate repair, that is after seven to ten days is the better procedure.

Immediately after labor the distorted edematous cervix is bathed in the bloody discharge from the uterus, making it difficult to determine the extent and the degree of

the laceration. The tissues are often so swollen and friable that proper apposition by sutures is impossible. After seven to ten days sufficient involution has taken place, to establish land marks more readily but it subjects the patient to a second operative procedure just about when she begins to get ready to leave the hospital.

The operation itself is rather simple, if performed immediately after labor, but little anesthesia is required. A weighted retractor pulls down the posterior vaginal wall. The uterus is pushed downwards and forward by an assistant, thus bringing the cervix into view. Vulsellum forceps should not be used to hold the cervix as traction with them upon the swollen edematous tissues will result in additional tearing and hemorrhage. Sponge forceps with their broad ring like ends serve the purpose better but the handles obscure the limited field of operation. I prefer to pass a heavy silk worm gut suture through each anterior and posterior lip and secure efficient and nondestructive tractors in this manner. Traction upon these sutures will at once check the hemorrhage, that usually obstructs the field of operation. It should be remembered that the uterine arteries pass from the side of the pelvis to the uterus at a right angle. When severe traction downwards is made upon the uterus, this is converted into an acute angle which effectively closes the lumen of the uterine artery and controls the hemorrhage. In placenta previa after the delivery of the fetus and placenta this alone, may not suffice to check the bleeding, then with severe traction downward and to one side a forty-day chromic catgut suture on a full curved needle is passed as high up as possible in one lateral fornix in such a way as to catch some cervical tissue and then brought out on the vaginal side. The same is repeated on the other side, and should control any hemorrhage. The torn tissues should be sutured with No. 2 forty-day chromic catgut interrupted sutures and it is well to place the one in the uppermost angle from within outward to secure good control of any bleeding area. Thereafter they should be placed from the outside in a V shaped manner and tied just sufficiently tight to bring about good approximation. It is well to lift up the muscular tissue in the torn area with tissue forceps as each suture is passed, otherwise proper restoration is not accomplished.

If such cervical repair becomes the general custom then it will destroy one of the most lucrative fields of operation for the gynecologist.



## DISCUSSION

**John D. Allen:** Dr. Davidson asked me to say something about the Aschheim-Zondek test for pregnancy, and prepare specimens demonstrating the reaction. Most of the work we have undertaken along this line was at his suggestion. In our experimental work the results have been 100 per cent, and in ten clinical cases our results have also been 100 per cent, so far as we have been able to verify. Aschheim and his associates have reported more than four thousand cases in which the margin of error was less than 2 per cent. That is very unusual in a laboratory test of this type.

The principle of Aschheim's reaction, as mentioned by Dr. Davidson, is this: the urine of a pregnant woman contains hormones liberated by the anterior lobe of the pituitary gland, which gland is stimulated to hyperactivity by the pregnancy. When this urine is injected into animals that have never menstruated, menstruation is produced. This can be detected by examination of the uterus, oviducts and ovaries, these organs being markedly congested.

Aschheim's technique briefly is this: five female white mice from three to six weeks old are injected respectively with 1/4 to 1 c. c. of urine subcutaneously twice daily for three days. The mice are killed on the fifth day. He has made the statement that if one of the mice is positive he considers the reaction positive for pregnancy.

We have been unable to secure white mice, so have used rabbits varying in age from two to three months, and 5 c. c. of urine is injected intracardially in one dose. Experimentally we have found that if pregnancy exists, 2 c. c. will produce a positive reaction in the rabbit within thirty-six hours. If there is no pregnancy, 10 c. c. injections have no effect, the reaction being still negative after forty-eight hours. Our average injections have been 5 c. c. of urine. We have also injected the urine in 5 to 10 c. c. doses subcutaneously, one injection a day for two days, then killing the rabbit in forty-eight hours.

Aschheim states that a microscopic diagnosis unnecessary. Other observers have advocated microscopic diagnosis in cases that are negative macroscopically. The work that we have done and the slides we have examined have verified Aschheim's statement, that is to say, the cases that are negative macroscopically are also negative microscopically.

Through the courtesy of Dr. Miller, of the pathological department, University of Louisville, I will show a few slides demonstrating negative and positive microscopic findings. I also exhibit several bottles properly labeled, containing specimens which will be of interest in connection with the slides.

**Thos. K. Van Zandt:** I am very much in-

terested in the Aschheim-Zondek biological test for the diagnosis of pregnancy. I believe it will be a great boon to those of us who give special attention to obstetrics. The Abderhalden serum reaction, the antitrypsin and the antithrombin tests have not been convincing. The Aschheim-Zondek test will be of great benefit in the diagnosis of ectopic gestation, since it is positive, I believe, as early as the fourth week of pregnancy. It is also important from a medico-legal standpoint, since the hypophyseal hormone persists in the urine for seven or eight days after abortion or labor. Formerly we depended chiefly on presumptive signs in the diagnosis of pregnancy, such as cessation of menstruation, changes in the breasts, morning sickness, Chadwick and Hegar's signs, etc. Now we can place greater reliance on the Aschheim-Zondek test. We have depended on the history given by the patient to a certain extent. This as you know, is very questionable. Women are getting wiser, they are becoming trained in contraceptive methods. Still at times they are uncertain and come to us with that eternal and oft-repeated question: "Doctor, do you think I am pregnant? I have no symptoms of pregnancy. I am sure nothing has happened." Now all we have to say is: "My good woman if you can produce ten dollars and 10 c. c. of your urine, I will be able in one hundred hours to give you a positive opinion."

**Wm. H. Allen:** It is interesting to note how quickly the Aschheim-Zondek test becomes negative after delivery. In experimental animals the test is positive as early as three days after the advent of pregnancy, and in the human the results have been practically identical, showing that the test is a very valuable addition to our diagnostic procedures. Other than the human, the monkey is the only animal that reacts to this test.

**Wm. T. McConnell:** In regard to ectopic gestation, Dr. Davidson's paper presents this topic in an admirable way. Ectopic gestation is one of the most difficult things to diagnose clinically but with the woman under complete anesthesia a careful bimanual examination will clarify many points which would otherwise have remained uncertain. We now have the biologic test of Aschheim which offers us valuable information, being positive in practically every case of extra-uterine pregnancy.

I want to thank Dr. Starr for sounding a note of warning in regard to Cesarean section. There is no question that in certain cases, which must be carefully selected, Cesarean section is clearly indicated; but in borderline cases mature obstetrical judgment is required to determine whether the woman should be sectioned or not. It is a formidable operation and should be undertaken only when good obstetrical judgment has so decreed.

As to immediate cervical repair: This has been debatable ground for years, both from an obstetrical and a gynecological standpoint. Dr. Emrich has brought to our attention a very pertinent subject. A number of obstetricians throughout the country are making immediate examination of post-partum cervixes, and many of them are repairing all cervixes that show any degree of laceration. These men have secured excellent results and their work cannot be ignored. There are a few objections to making this a routine procedure in primipara. One is the immediate post-partum condition of the patient. It is not always that the woman is in proper condition, because of exhaustion already present due to the process of labor, to safely undergo further operative steps. We will have to use good judgment to determine whether or not to go on with the more or less prolonged procedure of cervical repair when the woman is already exhausted, as she sometimes is. Second, it is difficult to tell in primipara which cervixes need repair and those that do not. We cannot always be sure which cervix will show permanent damage and which one will not. A cervix that bleeds profusely immediately following delivery should always be repaired to arrest the hemorrhage. If we have had experience enough to know which of these cervixes to repair, then routine inspection would be very valuable.

The most valuable aid to determining which cervixes to repair is a knowledge of how a given cervix has dilated. In physiological dilatation the internal os is retracted upward quite a distance toward the body of the uterus, leaving a very thin portion in front of the head, the external os being reduced to paper-like thinness. In a mechanical dilation the internal os is not drawn upward, the cervix does not become thin, and the head comes through by forcefully stretching the cervix. In the cervix which has thinned sufficiently a tear, say one inch long, would scarcely show when involution had taken place, because very little of the actual cervical tissue would have been involved. An inch tear into an unthinned cervix, however, would involve practically the entire cervical body, and would leave a bad postpartum laceration. Mere inspection would not suffice to determine which cervix to repair; but inspection plus a knowledge of whether or not this particular cervix had become properly thinned would be a fairly safe guide.

**Edward Speidel:** In ectopic gestation the most important feature is early diagnosis, and this is sometimes very difficult. Generally the patient is a married woman who has remained sterile for a number of years, with the absence of perhaps one menstrual period, followed by irregular bleeding simulating the menstrual flow in that it is free from clots. Similar symptoms may be produced by other intra-abdominal le-

sions and the woman may not be pregnant; the presumptive signs of pregnancy may be absent. The question whether she is pregnant or not can now be definitely determined, in the majority of cases, by use of the Aschheim-Zondek test.

In regard to Cesarean section: This operation should never be performed in the absence of distinct indications. Of course, the most frequent indications is contracted pelvis. Where there is only moderate contraction of the pelvis, the woman should be given the test of labor. Fortunately now in cervical Cesarean section we have an operation that can be deferred for several hours, giving the patient a thorough test of labor. A fair test of labor really means full dilatation of the cervix and rupture of the bag of waters. The advantage of the low Cesarean operation is that it is much easier to perform late in labor than early in labor, because the longer the patient has been in labor the more the cervix is dilated and retracted, and in consequence the incision in the cervix can be made more readily.

With reference to repairing the lacerated cervix: One thing I have always done in repairing a lacerated cervix is to use silkworm gut traction sutures on the anterior and posterior lips to bring the cervical tissue well downward. These sutures do not injure the cervix, they occupy no room in the vagina, and do not obstruct the view.

Cervical erosions are best treated by light cauterization between the periods of pregnancy. In this way we remove any slight infection that may have been present at the time of labor. It has been found that these eroded areas in the cervix harbor streptococci and may be the source of infection after labor.

**Oscar E. Bloch:** In my opinion, Cesarean section has not been performed as often as it should have been done, when results are considered. Forceps delivery with a dead or crippled child and a badly lacerated mother suffers in comparison with a neat, clean Cesarean operation, with a living, well child and a mother who recovers with a rather inconspicuous abdominal scar.

I think that it is eminently fair to introduce these elements of morbidity along with those of mortality when estimating the value of Cesarean section.

I wish to express myself in accord with the essayist referring to endocervicitis and laceration of cervix as possible foci of infection, and I am certain that many women suffering from persistent, annoying and crippling backache, can be relieved by proper operative treatment.

Regarding the immediate repair of the cervix in primiparae, I do not know why the essayist restricted primary repair to primiparae, in the first place, these being the patients who



are generally thoroughly exhausted by labor, as Dr. McConnell has well said, and are in no condition for any prolongation of anesthetic. Even when the patient is in proper condition for further operative procedure, I doubt the advisability of attempting repair of the cervix: (1) it is difficult to determine the amount of damage done, (2) the work may have to be undone in a short time to provide drainage of an infection of the uterus, and (3) after all this, subsidence of normal reaction will show that the work done is not satisfactory. One of my progressive obstetrical friends only recently told me that he had about decided that an immediate suturing the perineum was very unsatisfactory and that he thought the patient's condition would be improved by a later operation, and it is rather surprising to hear the advocacy of immediate cervical suturing by the essayist.

**David C. Elliott:** The subject of anesthesia in obstetrics has never been completely nor satisfactorily solved. As has been mentioned spinal anesthesia should not be employed when Cesarean section must be resorted to. This is because it is unsafe to subject the patient to the shock of spinal anesthesia and then superimpose the shock attending Cesarean section. Therefore, it is well to always remember that any large abdominal tumor which upon removal, will probably result in the loss of a large amount of blood, fluid or the extreme reduction of the intra-abdominal pressure is not a case for spinal anesthesia because the additional surgical shock is not tolerated. Sufficient and satisfactory anesthesia for Cesarean section is obtained with nitrous oxide—oxygen or ethylene—oxygen.

For uncomplicated deliveries nitrous oxide—oxygen is probably the anesthetic of choice; but due to the cost and expense of administration, its extensive use is prohibited. Perhaps with the introduction of some method of anesthesia using the new local agent, nupercaine, we may be able to develop a procedure which can be adapted both for normal deliveries and most forceps applications. If such a method can be developed, it will undoubtedly furnish us with an anesthetic capable of wide application in a long neglected field.

**A. R. Bizot:** Twenty-five years ago, after hearing a paper read on immediate repair of the cervix, I decided to adopt the procedure. I was much younger then than I am now. I soon came to the conclusion that it takes a genius to tell what part of the cervix to suture. Except for the control of hemorrhage from one particular part of the cervix, I do not believe primary repair is advisable. A man must know his business or the entire cervix will be sutured.

**Harry A. Davidson,** (in closing): This being a symposium, there has been a rather liberal dis-

cussion of the entire field rather than any special field. The Aschheim-Zondek test is not only positive in intrauterine but also in extrauterine pregnancy, in hydatid mole and in chorioma malignum. So far as I am aware the hormone, or whatever the chemic substance may be that is excreted in the urine of pregnant women, has not been isolated. An interesting fact was established in the experiments Dr. Allen has been making. A young married woman consulted me, after having missed one menstrual period, and wanted to know whether she was pregnant. She was already the mother of one child. I was quite sure she was pregnant, but took a sample of her urine to Dr. Allen. On this occasion he passed the urine through a Berkefeld filter and then injected it into a rabbit. The test was negative. Ten days later I had the patient bring me another sample of urine. This was not passed through the filter, and the test was positive. This shows that the hormone, or whatever the substance is, was separated from the urine by the Berkefeld.

In operating for ectopic gestation it is very important that the ovary be preserved if possible. I think the ovary on the affected side can be preserved in many cases, the oviduct, of course, being removed. I am quite well aware of the fact that it has been the custom of some operators to remove both oviduct and ovary on the affected side.

I would like to speak briefly concerning primary repair of the cervix. If there is severe postpartum hemorrhage from the cervix, as happens occasionally after forceps delivery, the cervical laceration must be repaired immediately to arrest the hemorrhage. But in most cases of prolonged labor, especially in forceps deliveries, there is considerable traumatism, and following this there is edema of the cervix and infection. In most of these cases I think it would be dangerous to suture the primary cervical laceration. When these cervixes are examined six weeks postpartum, it will be found that, in the vast majority of cases, nature has healed the laceration. In my opinion the only indication for immediate repair is severe hemorrhage coming from the cervix or branch of the uterine artery.

**Silas H. Starr,** (in closing): Dr. Bloch in his discussion mentioned one very interesting and important point, i. e., in cases where difficult forceps operations were required to complete delivery, both mother and child would have been better off had Cesarean section been performed rather than operative delivery per vaginam. In any case where it is determined that a difficult forceps operation will be required, it is safer to perform Cesarean section early—later the the forceps operation is usually safer for the mother.

Holland gives the following mortality table

for Cesarean section:

#### MATERNAL MORTALITY

	Total Cases	Maternal Deaths	Mortality
Not in labour . . . . .	1289	18	1.4%
Early in labour . . . . .	384	7	1.8%
Late in labour . . . . .	213	20	9.4%
After induction of labour . . . . .	35	5	14.0%
After failure of forceps or craniotomy . . . . .	102	27	26.5%

#### FETAL MORTALITY

	Number of Children	Fetal Deaths	Mortality	Mortality of Survivors
Not in labour . . . . .	1208	10	0.8%	3.9%
Early in labour . . . . .	393	4	1.0%	5.0%
Late in labour . . . . .	219	25	11.4%	5.0%
After attempts at forceps . . . . .	100	27	27.0%	10.9%

In regard to primary repair of the cervix: We repair the perineum immediately after labor, because we have the same anatomical structure after labor as at any other time. The cervix is an entirely different structure at the end of pregnancy than it is in the non-pregnant state. Not many cervical lacerations need give us much concern. When we look at the cervix after giving the uterus a chance to involute properly, we find merely a transverse slit on each side which soon heals.

Cervical erosions are best prevented and treated, beginning two weeks after delivery, by mildly astringent and antiseptic douches. At the end of five or six weeks examination often shows a perfectly normal cervix. In the prophylactic treatment of lacerations of the cervix: If the first stage of labor is unduly retarded and dilatation has sufficiently progressed, do not give a pituitrin; do not deliver with forceps with incomplete dilatation, and do not dilate the cervix manually. Too frequently forceps application is inside the cervix. This will cause deep tears. In those cases where deep tears have occurred from forceps application inside the cervix, or where there is evidence of hemorrhage, the cervix should be examined to determine the amount of raw surface, and especially the amount of bleeding, as these are indications for immediate repair of the cervix. Otherwise it is better to wait five or six weeks, and you will then be surprised how many of these cervixes will be found in good condition.

So far as cervical malignancy is concerned, the laceration is not the cause, it is the irritation and inflammation which follow. If a lacerated cervix becomes infected, cauterization is the best method of treatment, and if the cervix heals afterward the chance of malignancy is greatly lessened.

Wm. H. Emrich, (in closing): Difference of opinion "makes the world go round." If all had the same idea in regard to primary repair

of lacerated cervixes, there would be nothing to discuss. As to definitely determining whether or not the primiparous cervix is torn, careful inspection at the end of the third stage will convince the most skeptical that the postpartum cervix is not merely dilated but is deeply torn. These tears are clearcut. It is an easy matter for those who have not delved into this subject to express contrary ideas and opinions, but evidence is at hand daily to change one's mind.

Upon occasion patients are so exhausted that I deem it wise and advisable not to subject them to further trauma by doing primary surgical repairs. The lithotomy or perineal position in itself is exhausting. Careful observation of blood pressure, of myocardial tone; the judicious administration of cardiac and circulatory medication during the second, and the third stages of labor, and during that period of time required for repairs of the cervix and perineum, will provide sustenance and support quite ample for most requirements.

One gentleman suggested that he uses silk-worm gut as traction sutures through the anterior and the posterior lips of the cervix and finds this method very satisfactory. I agree that traction sutures during secondary repairs of old tough fibrous cervixes are practical. But all primarily torn postpartum cervixes are so friable that silk-worm gut would cut like a knife. To date sponge forceps with which to grasp the traumatised cervix are proving quite satisfactory.

The suggestion that linen, silk or other non-absorbable sutures should be used in repair of cervixes applies very nicely to secondary repairs. However, for primary postpartum cervical repairs, sutures of number four forty day chromic catgut remain long enough, resist absorption, and if properly drawn do not cut through.

The question was asked: Why primary suture when upon occasion it is necessary to cut these same sutures to provide drainage in infected cases? Postpartum patients without primary cervical repairs are given fractional doses of ergot to prevent postpartum bleeding and hemorrhage. Incidentally ergot provides snug closure of lymphatic channels reducing absorption to a minimum. Postpartum cases with primary cervical repair are given ergot for the same reasons; also, and this is absolutely necessary, to prevent clot formation, the passage of which would tear out the cervical sutures. Ergot as above advocated acts as a prophylactic against septic absorption. In no single instance during a period of five years (during which time this work has been done at first experimentally and later on routinely) has it been necessary to cut these cervical sutures to provide drainage.

"Why primipara only?" Because the repair of



a postpartum cervix torn at a previous labor presents an entirely different picture. The conditions are entirely altered. In a primipara the anterior cervical lip is large, the posterior lip is thin. In women who have been delivered before, there is less difference in size of the cervical lips. Furthermore the old lacerated edges may be rough with granulations, or at least the mucous membrane covered healed surfaces, would need denudation before suturing. It has been my idea to develop a technique which can be used in the latter type of cases, because very few patients will accept secondary repairs even when they are so informed.

As to anesthesia. The primarily torn cervix can in the majority of instances be repaired without anesthesia. The patient's resentment is most often manifest when the lateral walls of the vagina are pricked with the needle. The neurasthenic type patient can be very conveniently controlled with a psychological amount of anesthesia.

Some one spoke about examining cervixes six weeks postpartum and finding them healed. I have examined a great many of them that were not healed, and that is one of the conditions that created my interest in this work. Occasionally when the presenting cervix contains plenty of soft tissue in the sutures, the osseous tissue only moderately developed, permitting a greater degree of moulding than is the average; associated with a freely elastic quality in the mother's cervix; provided also that there is no active infection in the birth canal to be almost on the instant implanted on the torn surfaces;—in these cases primary union without sutures may take place; the exception that breaks the rule. And this thing does happen; but who can tell beforehand just when it will.

Someone grew eloquent with the astounding statement that: "Only a genius could do that work." Every surgeon who is gentle and patient can do this work to his own and to the satisfaction of everyone professionally concerned. A large proportion of the general practitioners after proper instruction and repeated efforts can succeed in this work. However, they must be the type not easily discouraged. May I pay my respects to the younger generation of the profession? I believe that ninety per cent of them can do the work.

The statement was made that within six weeks postpartum that nature heals most all of them. If an M. D. of the modern day is satisfied with what little nature can do in six weeks under such conditions, then it is barren soil into which has been planted a seed of great potentiality. Within six weeks edema will have subsided; the great disproportion between the thick anterior and the thin posterior lips will have disappeared; young mucous membrane will in part have grown over the lacerated margins of the bilateral or

stellate tears. However, note also that the anterior cervical lip will be everted; the intra-cervical portion of the canal will be congested, due to chemical irritation caused by the highly acid vaginal mucus acting upon the alkaline cervical mucosa; excoriation and erosion are in their developmental stage, shortly thereafter to be followed by granulation tissue. Add to this the systemic results of focal infection. At this time secondary repair is urgently indicated but how often done?

One gentleman drew upon the blackboard a circle within a circle leaving a narrow margin between to represent the post-partum cervix. I have never seen that type of postpartum cervix. They do not exist. He stated that sutures placed would become loose or of no value when the cervix contracted. His error is logical when no thought and study have been given the primary postpartum cervix. The internal os is only occasionally torn or enough of its fibers severed to prevent closure of the internal ring. This contraction, which takes place within a few minutes after the hypodermic of ergot or obstetric pituitrin, leaves the distal (or more vaginal) portion of the cervix like loose flaps quite ready and perfectly willing to respond to the intelligent placement of sutures. Held open the torn postpartum cervix forms an oval; the anterior and posterior lips are sufficiently well defined.

I sincerely thank all gentlemen who have added zest to the subject by their discussion.

**Chas W. Hibbitt**, (in closing): I think for practical study sterility should be divided into two groups, namely: primary and secondary. In the primary group we should consider women who have been married two years and have not become pregnant. The secondary group would include women who have been married and have become pregnant, and are sterile after birth of the first child.

The causes of primary sterility could be placed under the headings of: endocrine unbalance, lack of development of generative organs, posterior uterine displacements, and fibroid tumors.

The causes in the secondary group are in many cases pelvic inflammatory disease, posterior uterine displacements, and an endocervicitis especially when the cervical canal is filled with mucus thus preventing the spermatozoa from traveling upward.

Referring to Dr. Emrich's paper: We know that the cervix contracts immediately following delivery and if we introduce sutures at this time to bring the lacerated areas together we are suturing an area which will contract and continue to do so for days, thus leaving the sutures hanging loose and not accomplishing anything thereby. Hemorrhage from a lacerated cervix is however, an indication for suture.

I have used the radio knife as mentioned by

one of the speakers, and think it is an excellent instrument. Where biopsy is made we thoroughly cauterize the area from which section was removed. This is important and should be done in every case following biopsy.

# APPENDICITIS RECORD OF LEXINGTON, KENTUCKY FOR 1929; A STATISTICAL STUDY

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The purpose of vital statistics is to set forth facts concerning births and deaths. The mortality figures as presented by the Bureau of Vital Statistics are presumed to represent in each community the death rate in that community and while undoubtedly the sum total of deaths in any place are usually accurately reported, the proper assignment of each individual death to its proper place in the international classification of the causes of death is a matter which depends on the intelligency and honesty of the members of the medical profession.

Furthermore in order to properly evaluate the official figures it is necessary to take into consideration other factors beside the number of deaths and the total population. In my analysis of appendicitis deaths in Lexington, Kentucky for 1928 I made use of the term intrinsic mortality, meaning thereby the actual death rate of the residents of Lexington and of Fayette County excluding all non-residents dying of that condition in our hospitals. I attempted to show that appendicitis being an acute condition, cases are attracted to surgical centers from approximately like areas (though this does not necessarily hold in the more densely settled eastern area). The smaller centers having a much larger percentage of non-resident cases than the larger, amounting sometimes here to fifty per cent of the total. The larger centers absorb the added number of deaths with but little increase in its intrinsic rate.

I might here add that Lexington has had to absorb from 150 to 200 deaths occurring in the Eastern State Hospital annually, only 13 per cent of the patients there being residents of this county. No credit is given in the official reports for this added burden. Actually in this city this increases our rate by 15 to 20 per cent. In a city ten times the size of Lexington the increase would be 1½ to 2 per cent.

The thing that concerns us as medical men and surgeons is: First, what is our actual death rate from appendicitis? And Second, what is our mortality per cent in the surgery of this condition? In other words what are

the chances that anyone in our city will die of appendicitis? And second should he have appendicitis, what are his chances of recovery?

In our analysis of the 1928 figures we found that the chances of anyone dying of appendicitis in that year in Lexington and Fayette County was slightly greater than it was in New York and slightly less than it was in Detroit and that the death rate for operations for acute appendicitis was 6.7 per hundred operations. In pursuing this investigation for 1929 the same system was employed as for the previous year. Namely, from the original death certificates the names and other data were obtained not only for each appendix death but also for deaths from conditions that might be mistaken for appendicitis. The hospital records were then gone into in order to find if appendicitis was a factor in any of the cases not listed as such, and further to eliminate from the list cases that had died of some other condition and had erroneously been assigned to that category.

In preparing this report I have taken the clinical diagnosis rather than the pathological diagnosis as the basis of classification of acute appendicitis for the reason that while in most cases the pathological diagnosis coincides with the clinical in not a few cases of definite clinically acute disease the pathologist will report the condition as sub-acute or chronic sometimes even when an appendix has been dug out from an abscess wall, as appendicitis.

In pursuing this study from year to year the writer is impressed with a very definite variation in the number of acute fulminating cases. While I have not classified the cases according to monthly or meteorological conditions I have a very definite impression that these highly fulminant cases occur more frequently during periods of epidemic colds.

The official figures from the Census Bureau give the number of deaths in Lexington, Kentucky for 1929 as 14. Going through the hospital records I can definitely add two deaths that were due to appendicitis but were charged to other conditions. This brings the total to 16, upon which I shall start figuring.

White .....9

Colored .....7

Females .....9

Males .....7

Residents .....9

Non-residents' .....7

Age according to decades:

1 - 10 .....2

10 - 20 .....4



20 - 30 .....	2
30 - 40 .....	1
40 - 50 .....	4
50 - 60 .....	1
60 - 70 .....	2

Assigned to surgeons—Hunter 2; Polk 1; McGinnis 2; Alley 1; Stoeckinger 1; Reddish 1; Warren 1; Hughes 1; Vance 1; Bullock 2; Heizer 1; Barkley 1; McLean 1.

Type of Operation

No operation .....	3
Incision and drainage.....	5
Appendectomy .....	6
Salpingectomy; suspension; appen- dectomy .....	1
Salpingo-oophorectomy; appendectomy	1

The operative findings are recorded as follows:

Case No. 1. Retroversion of uterus, chronic inflammation both tubes. Enlarged adherent appendix.

Case No. 2. Not stated.

Case No. 3. Practically negative.

Case No. 4. Appendiceal abscess extending into pelvis.

Case No. 5. Gangrenous ruptured appendix. Free pus in cavity.

Case No. 6. Not stated.

Case No. 7. Free pus in cavity.

Case No. 8. Obliterated appendix and adhesions.

Case No. 9. Gangrenous perforated appendix.

Case No. 10. Gangrenous appendix. Abscess in pelvis.

Case No. 11. Abdomen filled with free pus.

Case No. 12. Twist of right tube and ovary. Acute appendix.

Case No. 13. Gangrenous appendix—not ruptured.

Duration of symptoms before operation:

1 day .....	1
2 days .....	3
3 days.....	3
4 days .....	1
5 days .....	1
7 days.....	1
not stated.....	3

Deaths after operation occurred on days succeeding operations as follows:

4 hours .....	1
24 hours .....	2
48 hours .....	3
3 days.....	2
5 days.....	1
8 days .....	2
12 days .....	1
24 days .....	1

Pathologist's Report:

Case No. 1. Chronic salpingitis.

Case No. 2. No tissue.

Case No. 3. Normal appendix.

Case No. 4. No tissue.

Case No. 5. Acute diffuse appendicitis.

Case No. 6. No tissue.

Case No. 7. Acute diffuse inflammation of piece of omentum.

Case No. 8. Sclerotic appendix.

Case No. 9. Acute diffuse appendicitis.

Case No. 10. Sclerotic appendix.

Case No. 11. No tissue.

Case No. 12. Chronic obliterative appendicitis.

Case No. 13. Acute diffuse appendicitis.

The cause of deaths as ascertained:

Peritonitis ..... 7 |

Peritonitis with scarlet fever..... 1 |

Probably embolism ..... 1 |

Sepsis ..... 2 |

Shock ..... 1 |

Not stated ..... 1 |

REMARKS

Case No. 1. This is a case in which appendix was removed incidentally and should not be charged to appendicitis deaths.

Case No. 2. No history of previous attacks. No cathartics. Pneumonia one week—abdominal symptoms one day. Autopsy: patent foramen ovale; atelectasis part upper lobe, inflammation; subacute abscess right kidney; appendiceal abscess, acute.

Case No. 3. History of three years duration. Pain during menstrual periods. Nausea and vomiting.

Case No. 4. Acute generalized peritonitis following appendiceal abscess. History of cathartics. No history of previous attacks.

Case No. 5. No previous attacks. Purgative. No autopsy.

Case No. 6. Previous attacks and cathartics not mentioned. Duration of symptoms three days prior to admission (20 hours post-admission). Autopsy: diffuse peritonitis with multiple abscesses.

Case No. 7. Previous attacks not stated. Castor oil before admission. Autopsy: acute diffuse peritonitis following ruptured gangrenous appendix.

Case No. 8. One previous attack.

Case No. 9. No mention made of previous attack or cathartics. No autopsy.

Case No. 10. No autopsy.

Case No. 11. No mention made of previous attacks or cathartics. No autopsy.

Case No. 12. No mention made of duration of symptoms, previous attacks, or cathartics. Appendix probably played no part in symptoms or result.

Case No. 13. No mention made of previous attacks or cathartics. Exploratory operation (11-10-29, 14 days following appendix operation)—findings negative. Died 11-21-29—

symptoms of sepsis.

This tabulation includes all cases reported as dying from appendicitis as reported by the local registrar plus two cases obtained from the hospital records. In two of the cases a distinction must be drawn between deaths from appendicitis and deaths following appendectomy. The total of 16 includes all the number of deaths both operative and non-operative. If one would arrive at a correct determination of the number of deaths from appendicitis he will be forced to exclude from the list:

Case (10) who died from scarlet fever and an ill timed appendectomy.

Case (2) appendix removed incidentally—final hospital diagnosis: pelvic inflammatory disease.

Case (15) volvulus Fallopian tube, appendix removed incidentally. Pathological diagnosis: chronic obliterative appendicitis.

Case (1) does not belong in this list—duration four months—salpingitis—symptoms of acute obstruction or peritonitis. Final hospital diagnosis: pelvic inflammation (no operation).

Here I would mention the fact that some insurance companies do not pay when illness or death is due to diseases of the female generative organs. The inclusion in the list of cases (1), (2) and (5) are significant as bearing on this point.

Leaving these five cases out of consideration because in them appendicitis was definitely not the cause of death we have a total of eleven deaths that represent in my opinion all the cases that should be assigned to this category.

Of these eleven, two cases were brought into the local hospitals from surrounding counties and died within three hours after admission. No operation in either case (cases 4 and 14). This leaves nine operative deaths from appendicitis. Of these nine—

Five were residents of Lexington.

Seven were resident of Fayette County.

Two were from outside of Fayette County. Of the total number eleven (operative and non-operative).

Five were residents of Lexington.

Seven were resident of Fayette County.

Four were from outside of Fayette County. Of the eleven deaths (operative and non-operative).

Eight were white.

Three were colored.

As to percentage mortality figuring as in 1928—first on the basis of the total assigned deaths relative to the population of the city:

Total deaths 16. City population (1929) 45,304 = 35.3 per 100,000.

Relative to the population of the county:

Total deaths 16. County population (1929) 67,139 = 23.8 per 100,000.

Second—from corrected list number:

Total deaths 11. City population (1929) 45,304 = 24.2 per 100,000.

Total deaths 11. County population (1929) 67,139 = 16.3 per 100,000.

Third—intrinsic mortality i. e. residents of city:

Total deaths 5. City population (1929) 45,304 = 11.0 per 100,000.

Total deaths 7. County population (1929) 67,139 = 10.4 per 100,000.

St Joseph's Hospital Mortality

Acute appendicitis—100 operations; 5 deaths.

Chronic appendicitis — 44 operations; 1 death.

Good Samaritan Mortality

Acute appendicitis—139 operations; 5 deaths.

Chronic appendicitis—66 operations; No deaths.

To which may be added one death in which an acutely inflamed appendix was removed from abdomen involved with diffuse carcinoma.

This is equivalent to a mortality of 4.18 per cent for acute appendicitis and .9 for chronic. However, in 1929 three surgeons doing the greatest amount of work operated on 159 cases with only three deaths.

When one goes to analyze the mortality statistics he is impressed with the apparent utter disregard of all that is written in the record not only of history, symptoms, physical findings and pathologist's report, but also at times the autopsy report. When making out the final record (twice in the cases here reviewed) the hospital diagnosis is at variance with the cause of death as given on the death certificate.

There are in Lexington 22 doctors who operate more or less frequently on abdominal cases.

#### Blood Pressure in Normal Pregnancy.—

In 1,000 cases of normal pregnancy studied by Walser, the average blood pressure readings, both systolic and diastolic, were lower than given in most textbooks. There is probably a slight increase in average blood pressure readings of pregnant women according to increase in age. Parity has little, if any, effect in increasing blood pressure in pregnancy. Three fourths of all normally pregnant patients have an average systolic blood pressure over 100. Many patients have a systolic blood pressure of less than 90 during pregnancy and, if the constitutional causes are excluded, no treatment is necessary. There is no reason for fearing shock after delivery because of the previous low level of the blood pressure.



## LEAVES FROM THE HISTORY OF MEDICINE\*

R. C. FALCONER, M. D.

Lexington.

*"As for the truth, it endureth and is always strong; it liveth and conquereth evermore."*

*Esdras*

### MEDICINE OF ANTIQUITY

According to the Egyptian story in mythology, Osiris, the embodiment of Truth was dismembered and cut into numberless pieces by Typhon, of which Isis gathered as many as possible. Medicine, like Isis, has been all through the ages collecting here and there fragments of the scattered truth, upon which to found an art of such wonder and magnitude as to be excelled only by its benevolent spirit and useful work in the cause of suffering humanity. Raphael and Michael Angelo painted pictures to adorn parlors and museums; Cheops and the other pyramids were erected by the Egyptians to mystify and amaze the world, even to outlive time. Horace boasted of building a monument more lasting than bronze, to defy even the elements: institutions of learning and education may be established and flourish: men may achieve greatness and renown in various walks of life: but no man can measure or estimate the work of the physician in his relation to society. Robert Louis Stevenson paid a beautiful tribute to the medical profession when he said:

"There are men and classes of men that stand above the common herd: the sailor and shepherd not infrequently: the artist rarely: rarer still the clergyman: the physician almost as a rule. He is the flower (such as it is) of our civilization: and when that stage of man is done with, and only to be marvelled at in history, he will be thought to have shared as little as any in the defects of the period and most notably exhibited the virtues of the race. Generosity he has such as is possible to those who practice an art, never to those who drive a trade: discretion, tested by a hundred secrets; tact, tried in a thousand embarrassments; and what are more important, Herculean cheerfulness and courage. So he brings air and cheer into the sick room, and often enough, though not so often as he wishes, brings healing."

The healing art is as old as history itself, dating back as far as we can learn to four thousand years B. C. The Israelites seem to have acquired their knowledge of medicine from the Egyptians, than whom they are said to have been even more proficient, as were

also the physicians of India. In the very remote antiquity prayer oblations, conjurations, and various other methods supposed to be supernatural, were used in healing the sick, and whoever was master of the sacred rites, the priest, treated the disease. Oil and balsam were poured into wounds, and medicine extracted from herbs was given internally.

"To one small people it was given to create the principle of Progress. That people was the Greek. Except the blind forces of nature, nothing moves in the world which is not Greek in its origin." Aesculapius was the god, Hippocrates the father of medicine. Greece in the time of Plato, Pythagoras, Empedocles, and Democritus, was the birthplace of rational medicine, which traveled to Rome by way of Alexandria.

After the fall of Rome, the progress of medicine was sustained and promoted by the Arabians. In the museum at Naples, surgical, dental and obstetric instruments attest the ingenuity of the physicians of Pompeii and Herculaneum crude and imperfect as these instruments were, they challenge wonder and admiration, besides serving the purposes for which they were designed. To go back to Greece, medicine as depicted by Plato, commands our interest. Some of his ideas, strange and weird as they were, smack of some of our modern principles, tenets and practices. A complete circulatory system was unknown to Plato, yet he knew that the blood was in constant motion, and also that it was the source of bodily nutriment.

"The liquid itself we call blood, which nourishes the flesh and whole body, whence all parts are watered, and empty spaces filled." The same philosopher's division of the mind into reason, spirit and appetite, bears a resemblance to modern psychology. The rational, immortal principle of the soul, he calls the "golden cord of reason, located in the brain, and inasmuch as we are a plant not of earthly but of heavenly growth, raises us from earth to our kindred in heaven."

"The mortal soul," he continues, "consists of two parts, the one with which man loves and hungers and thirsts, and feels the flutterings of any other desire, is placed between the midriff and the neck, in order that it might be under the rule of reason and might join with it in controlling and restraining the desires when they are no longer willing of their own accord to obey the word of command issuing from the citadel."

Plato had also the idea advanced by modern psychology that much of the prevalent moral obliquity and crime is due to physical causes, and involuntary.

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Verifying the dictum “Mens sana in corpore sano.”

In this connection, reference might be made to Socrates, who professed the art of a mid-wife practicing on the souls of men, when they are in labor, and diagnosing their condition as to whether pregnant with the truth or some daring folly.

The idea of ancient philosophers as to preventive medicine was to preserve due proportion of body and mind. In Plato’s Republic we find mention of two kinds of physicians: “Now, you know that when patients do not require medicine, but have only to be put under a regimen, the inferior sort of practioner is deemed to be good enough; but when medicine has to be given, then the doctor should be more of a man.”

Hippocrates practiced medicine in the fifty century B. C., and to him we owe much for his writings and the famous oath by which phvsicians swear allegiance to profession and public.

Hippocrates seems to have noted the progress or decline of his patients from day to day, within the limitation of his knowledge, somewhat according to the mode of modern phvsicians.

Saint Luke was a physician and mentions in his gospel the case of a woman who had an issue of blood twelve years, and spent all her money in trying to be cured.

The Greek philosophers had the idea of what might be called a preface to life—pre-natal care—they studied and cultivated conditions to improve physical and moral qualities of future generations. This science was known as “Eugenics” or “Eugenetics.” They had also a science called “Euthenics,” the purpose of which was to improve the race through regulation of environment. Still another science, called “Eugenism,” the pur-

pose of which was to study heredity and environment, calculated to produce healthy and happy existence, the attainment of which they called “Euphoria,” meaning bodily comfort—well being—freedom from pain and distress. Finally, they studied conditions and environment calculated to produce a happy death, called “Euthenation.”

### MODERN MEDICINE

Passing to the sixteenth century, we find Paracelsus giving a graphic account of hospital gangrene, and instituting a reform in surgical practice, also a revival of anatomy by Vesalius and Fallopius. Toward the latter part of the same century flourished Ambrose Pare, called the father of surgery, whose opus magnum was the treatment of large arteries by ligature, which made amputation on a large scale possible for the first time in history. Just prior to this achievement, (1628) Harvey had explained the circulation of the blood, which with his co-workers did much to place medicine on a physiological basis.

The first hospitals were established in the City of Mexico by Cortes and on Manhattan Island in New York, 1663. In 1798, Edward Jenner, an English physician, introduced vaccination against variola. Two more links were added to the apparently endless chain of medical development, when Louis Pasteur blazed the way to antisepsis by his discovery that germs or microbes in the air caused sup-puration and various types of infection, and when Sir Joseph Lister later (1867) published his report of experiments in the treatment of wounds. Enlightened by these researches, the art of surgery received new impetus and the mortality from wounds and surgical operations was greatly reduced, as shown by the World War in comparison with that of the Civil and Spanish-American Wars.

Civil War May, 1861 to June, 1866				Spanish American War May 1898 to June 1902		World War April 1917 to Dec. 1919	
Numbers		Rates per 1000		Numbers	Rates per 1,000	Numbers	Rates per 1,000
Admissions							
Battle Injuries.....	290,950	122.81		147,185	307.32	260,954	63.21
Other Injuries.....	178,558	75.37				299,069	72.44
Total							
Deaths							
Battle Injuries .....	76,216	29.70		1,407	2.94	50,399	12.21
Other Injuries.....	41,937	16.34		967	2.02	5,591	1.35
Total							

Ether as an anesthetic was first used at the Massachusetts General Hospital in 1846, several contesting for the honor, and chloroform by Dr. James Simpson, the next year, in Edinburgh. Dr. Robert Koch of Germany (1881), discovered the germ of Cholera and in 1882 announced the Tubercle bacillus to be the specific cause of tuberculosis. As a result of this discovery the prophylactic treatment of tuberculosis was established and has been sustained with signal success as shown by the appended statistical table.



## Deaths per 100,000 Population:

Year	Tuberculosis
1900 .....	201.9
1905 .....	192.3
1910 .....	160.3
1915 .....	146.3
1920 .....	114.2
1925 .....	86.6
1928 .....	79.2

Typhoid Fever has not as yet been eradicated, but by prophylaxis and vaccination the prevalence and mortality have been greatly reduced.

Cancer called the universal menace can be cured by early recognition and extirpation, but the figures indicate retrogression instead of progress. Let us hope that the mantle of Gorgas will yet fall upon worthy shoulders and that Cancer and Tuberculosis will be known only in history as vanquished enemies of mankind.

## Deaths per 100,000 Population:

Year	Cancer
1900 .....	63.0
1905 .....	71.4
1910 .....	76.2
1915 .....	81.4
1920 .....	83.3
1925 .....	92.6
1928 .....	95.9

In 1896 Roentgen announced before the Physico Chemical Society in Wurzburg his discovery of the X-Ray, the utility of which cannot be evaluated. The wonder is how medicine ever progressed without it. A comparatively recent achievement (1901) was the eradication of Yellow Fever in Havana by Gorgas. The history of the development of modern medicine is the history of etiology, prophylaxis and therapy. The healing art, in all its branches and ramifications, has made more progress in the last hundred years than it has made in all its history. As to internal medicine, the cardinal factors in bringing it to the present status, of prophylaxis and defense against disease are general and laboratory research, X-rayology, instruments of precision, vaccines and serotherapy, also hospital standardization. As to surgery, the principal factors contributing to make it a more exact and successful art are antisepsis, anesthesia, X-rayology and improved operative technique. Whether we are living in the golden age of medicine, or whether it is yet to come, is a question to ponder in our minds. It is certain, however, if we seek the whole or absolute truth, we reach for the unattainable; so we must be satisfied with broken portions such as each of us can gather.

## HAY FEVER, ASTHMA, AND OTHER ALLERGIC DISEASES\*

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Everyone is familiar with the fact that some people develop a rash if they eat strawberries. This is not due to anything ordinarily poisonous in the strawberry itself, but to a peculiarity in the body of the person who eats the strawberries. The peculiarity lies in the cells which make up the person's body. The rash develops because the cells are so changed that the strawberries act like poison when in contact with them. Such cells are known technically as sensitized and the person is said to be in the sensitized or allergic state and is called an allergic or hypersensitive individual. It should be understood that such individuals may be quite normal and robust in every particular except the one just cited. Furthermore, it should be understood that the condition is a specific one. In the instance mentioned, it is only the strawberry which causes the rash.

Medical research men have made a very careful study of these conditions in recent years. They have found that a condition which closely resembles it can be produced in animals. This condition in animals is known as anaphylaxis. If we understand anaphylaxis, we shall find that we have a better understanding of hay fever, asthma, and other so-called allergic diseases.

If, for example, a guinea pig is given a hypodermic injection of egg white, no harm is done to the animal and it remains perfectly healthy. But if a second injection is given to the guinea pig some fourteen days later, it proves fatal. What apparently has happened during those fourteen days is that the guinea pig has developed a sensitivity to egg white.

Post-mortem examination of the guinea pig reveals the fact that death was caused by an over-distension of the lungs during which the air was trapped in the air sacs of the lungs by spasmodic contractions of certain muscles and by an outpouring of mucus.

The guinea pig is said to have died from anaphylactic shock.

The similarity between the symptoms shown by the guinea pig prior to death from anaphylactic shock and symptoms exhibited by persons suffering from asthma was first pointed out in 1910. It is now generally agreed that asthma, hay fever, and a number of other allergic diseases are what might be

\*Resume of an address before the Jefferson County Medical Society, Louisville, May 5, 1930

called anaphylactic phenomena in the human being.

#### HOW SYMPTOMS ARE PRODUCED

One of the most striking facts about the history of allergic patients, that is, patients suffering from asthma, hay fever, and other allergic diseases, is the occurrence of allergic manifestations in other members of the family. Most observers report such a history in over one-half of the cases. Certain observers believe that the tendency to allergy is inherited. This, however, is not a definitely established belief. It may be, though, that the ease with which a patient can acquire sensitiveness or allergic state may be an inherited quality.

In my own series of cases, 58% gave a family history of allergy. The actual percentage, however, may have been higher, since most people recall only cases of hay fever and asthma and almost none ever mentions eczema, hives, or other allergic conditions in the medical history of the members of his family.

In view of these findings, we believe that most patients with allergic symptoms have a natural tendency to allergy. The allergic state develops when the patient's body develops the ability to react.

Individuals may be in the allergic state for many years before symptoms begin. They are produced when that patient comes into contact with a dose of the specific substance to which he is sensitive. Just as in the guinea pig the shock is produced only by the particular substance to which he is sensitive, so also in human beings these reactions are specific. The severity of the symptoms depends upon the size of the dose, the degree of absorption, and the degree of sensitivity of the patient. The particular symptoms depend upon the organs of the body which are sensitive. If it is the skin, there will be eczema or some other skin disease; if it is the lung, there will be asthma, spasmodic croup or spasmodic bronchitis; if it is the nasal mucous membrane, it will be hay fever; if it is the digestive organs, digestive disturbances will result, and so on.

Many individuals possess a tolerance for a certain amount of the specific substance to which they are sensitive and which induces allergy in their cases. Such a person will not show any symptoms for a small dose but will be brought into a state which Dr. W. T. Vaughn has called the "balanced allergic state." Any small additional dose may then bring on symptoms. There are also certain types of cases where the patient when in a balanced allergic state will develop symptoms from irritations of a general character.

Specific substances which can produce allergy are called technically, allergens. They may enter the body in four ways, namely, through the mouth or nose during breathing, through the digestive tract, through the skin by absorption, and in the case of bacteria, by infection.

Under modern conditions of life, we come into contact daily with innumerable substances, many of which may be allergens. The air we breathe always contains floating particles of many kinds. Pollen, dust from leaves, particles from the dandruff and hair of animals, dusts produced in many industrial processes, and other particles may be in the air. Any of these may affect an allergic patient either through the mouth or nose or the skin.

Any food may be an allergen for some particular patient. It is worth noting that the most common foods are the most frequent offenders in this respect.

Bacteria are sometimes allergens also.

In addition, there are many irritations which produce symptoms when the patient is in the balanced allergic state. But as already explained, they bring on symptoms only when the patient has had a dose of the specific allergen which affects him. Among these irritations are weather changes, exposure to heat or cold, and so-called nervous influences.

#### HOW CASES ARE DIAGNOSED

The diagnosis of any disease may be divided into two parts, the history and the examination. The history is of extreme importance in allergic patients. The age of the patient, the age at which symptoms began, the frequency and severity of attacks, the relation of these attacks to the seasons of the year, and the type of the attacks must all be ascertained. The home environment, the presence of animals; stables or special factories in the neighborhood, the type of bedding and furniture used, are important. The history of attacks following some specific exposure and the existence of an allergic family history are of great importance. A carefully obtained history will usually be sufficient to enable the physician to be certain of the existence in the patient of an allergic state, and may afford some clues to the exciting causes.

The basis of all examinations is the investigation of every organ of the body by a physical examination supplemented by studies of the blood and urine. This will disclose any intrinsic causes for the symptoms, such as nasal sinus disease, abscessed tooth, diseased tonsils, infections elsewhere in the body, or chronic heart or lung disease, and may disclose other changes characteristic of allergy, in the blood. There remain then the special



examinations to get clues as to the nature of the specific allergens. The basis of the examination is the skin test. Many years ago it was noted that if pollen was rubbed into the scarified skin of a hay fever sufferer, an urticarial wheel or hive would develop at the site of the scratch, and that this reaction could be produced only by the particular pollen to which the sufferer was sensitive. Later, it was determined that other substances to which the patients were sensitive would give similar reactions, and this method is now in general use to get clues as to the specific allergens in any given case. When these clues have been obtained it is necessary to plan experiments in which contact with the specific allergen suspected of causing symptoms, is avoided. If the symptoms are brought under control, it is then necessary to expose the patient to the specific allergen and to reproduce the symptoms, and this must be done with each allergen which gives a positive skin test before it can be included in the list of specific causes or excluded from it. It is in this part of the study that the co-operation of the patient is so vital, as the avoidance of specific allergens can be accomplished only by the patient.

#### HAY FEVER

Hay fever is the name given to the symptoms produced by contact of an allergic upper respiratory mucous membrane with pollen. A more scientific name is pollen disease. It affects about one per cent of the population. It is characterized by attacks of sneezing, watering and itching of the eyes, discharge of watery secretion from the nose, and itching of the nose, throat, and the roof of the mouth. Hay fever is usually seasonal in character, recurring annually, beginning and ending about the same time each year. When it is very severe it may be accompanied by asthma, and rarely it exists as asthma without nasal or ocular symptoms. It is then called pollen asthma. The history of attacks recurring annually at the same season is sufficient for diagnosis. It must be stressed that while symptoms of hay fever are nasal, there need be no organic abnormality in the nose, and examination between attacks usually reveals it to be quite normal. Once it has been determined that a patient has hay fever, it is necessary to find out to what pollens he is sensitive and to which of them he is sufficiently exposed for symptoms to result. To do this intelligently, one must be familiar with the flora of his territory, must know the hay fever producing plants, their pollinating seasons, the relative amounts of pollen produced by each, and their importance from the symptom-producing standpoint. Pollen is the male element in the fertilization of

plant seeds. All plants may be divided into two groups with respect to their methods of pollination; (a) those pollinated by insects and (b) those pollinated by the wind. The insect pollinated plants all have pretty flowers and sticky pollen. Because of their odor, color, and sweetness, they attract insects which carry pollen on their feet and wings from the male to the female portions of the flower. These plants produce only small amounts of pollen and under natural conditions their pollen is not found in the air, which is the reason for the fact that such flowers, in general, do not cause hay fever except when they are cut and used for decorative purposes in homes. Under these conditions pollens are apt to be scattered as the flowers dry. Treatment here is simply a matter of eliminating such flowers from the home. The wind pollinated plants have inconspicuous flowers. Their pollen grains are light in weight and are produced in great abundance. They depend on gravity and the wind for the proper distribution of the pollen, and as nature is solicitous for the survival of all plants, she produces it in excess and the air contains it in large amounts during the warm months. The plants which cause most hay fever are very heavy pollen producers, and their pollen is light enough to be blown long distances by the wind. It has been estimated that a fifteen mile hour breeze will blow ragweed pollen five miles, and it has been found in the air at a height of ten thousand feet.

There are three groups of plants which are the chief causes of hay fever, the trees, the grasses, and the weeds. The trees pollinate early in the spring and are likely to cause symptoms of about two weeks duration between February and April. The grasses begin to bloom late in April and finish early in July, and cause symptoms during the time, and the weeds cause symptoms from mid-August until the first killing frost.

In some parts of the country, various trees, grasses, and weeds are found which are not present elsewhere. These may cause symptoms at times other than these specified below.

Spring Hay Fever: A few warm days in March or April are likely to usher in the pollination of trees. A few people are sensitive to some of these pollens and will begin to have symptoms. The symptoms are usually mild, and as the season is short, little treatment is required as a rule. To find the cause it is necessary to know what trees are to be found in the patient's environment, which ones are pollinating at the time, and to which pollen the patient is sensitive.

Summer Hay Fever: About five per cent

of all hay fever patients have this seasonal type. It is often erroneously spoken of as "Rose Cold." It begins during the last week in May or the first week in June at the time when the early roses are in bloom. One observes the beautiful rose and blames it for the symptoms, but ignores the inconspicuous bloom of the grass which produces the real cause. Patients who are sensitive to one grass are apt to be sensitive to all members of the grass family, of which there are several hundred. For this reason, it is imperative that the physician know what grasses are indigenous to the territory in which the patient lives and the season of pollination. In Cleveland, for example, there are four major grasses. The earlier symptoms are due to the pollens of June grass and orchard grass, and the later ones to those of timothy and red top. Sweet vernal grass, which is common in New England, and Bermuda grass, which is common in the south, do not grow here and are unimportant as causes, though almost all patients will give positive skin tests to their pollens.

**Fall Hay Fever:** Fall hay fever begins in this locality around August 15th, and is the type complained of by ninety per cent of patients. It is caused by pollen of plants of the Compositae group, the chief offenders of which are giant and short ragweed. Cocklebur is also an occasional offender. Goldenrod, sunflower, and other decorative plants which are members of the group do not cause hay fever, though they are frequently blamed. The symptoms which begin around the middle of August tend to become more and more severe until they reach a peak around Labor Day. The peak lasts for a week or two and the severity then gradually declines until symptoms are terminated by the first hard frost, as this stops further pollination. The more pollen there is in the air, and the more one is exposed to it, the more severe are the symptoms. Patients vary considerably in their sensitivity to pollen. In some the tolerance is relatively high, and in others relatively low. For the same exposure the symptoms will be mild in the former and severe in the latter.

There are three methods of treating hay fever; (a) by the removal of the patient to an environment which is free or relatively free of the particular pollen to which he is sensitive, (b) by raising the tolerance to a level which will allow freedom from symptoms in spite of the the inhalation of pollen, and (c) by a combination of these two methods.

The first method has been in use for many years. It is customary for those who can afford it, to go away each year during their seasons of symptoms to some one of the hay

fever resorts. These resorts are places where there is little wind-borne pollen of the hay fever plants, either because these plants do not grow there, or because all grasses and weeds for a number of miles surrounding the resort are cut, so as to prevent pollination. They are usually in primitive places and provide little more than the absolute necessities for living. They are not, except on rare occasions, places where one would go by choice to spend one's vacation, but as hay fever causes so much distress, sufferers are willing to put up with any inconvenience so long as they may be made symptom free. There are certain fallacies about hay fever resorts. As more and more people go to them, the surrounding territory becomes more occupied, land is cultivated, and weeds grow in the wake of cultivated plants; some grass and weed pollens appear in the air; and the resort is no longer satisfactory for any except mild sufferers. The severely ill must then move on to resorts in still more primeval areas. At most hay fever resorts, for example, only about one-half of the hay fever sufferers are completely relieved because there is sufficient ragweed pollen in the air to cause symptoms in those patients whose tolerance is low.

Because it is difficult for many people to go away, thus leaving their work besides spending money for the trip, attempts have been made to produce hay fever resorts at home. One of the methods has been to confine the patient to a room in which all doors and windows are tightly closed so as to avoid the entrance of fresh air, thereby reducing the amount of pollen breathed in. Another method has been the transferal of the patient to a room in a downtown hotel, where the air-borne pollen concentration is less than that in the residential parts of the city. The first method is unsatisfactory because few people are willing to forego fresh air for indefinite periods of time to secure only partial relief; and the removal to a downtown hotel affords only partial relief and is as expensive as a trip to a hay fever resort.

During the past few years some air filters have been available which effectively remove all of the pollen from the air coming into any room, ventilating the room efficiently and maintaining the air free of pollen. The patient installs a filter in his bedroom and starts it in operation a few days before the date when his symptoms usually begin. He then sleeps in this room, going about his ordinary business affairs during the daytime. As the season advances, and more pollen appears in the air, he will find it necessary to remain a longer number of hours in his bedroom, and for the very highly sensitive patient as many as twenty-two hours per day may be necessary at the peak of the season to



afford relief. Some individuals find it convenient to have both their homes and their working places equipped with filters, so that they are in filtered air from twenty to twenty-two hours a day. Individuals using this method should curtail their outside activities during the entire hay fever season; they should avoid automobile and train trips, should not play golf or tennis, and should remain in filtered air as much as possible. The principle of this method of prevention is to keep the daily dose of pollen below the patient's tolerance, so that he remains in the balanced allergic state.

The second method, namely, that of increasing the patient's tolerance, has been in use for the past ten years. It consists of the repeated injection into the patient, of increasing doses of extracts of pollen, so as to teach the body to stand amounts equal to, or in excess of, doses which will be inhaled on any day during the hay fever season. There are several difficulties in this method. In the first place, the physician must know with certainty the exact pollen which is producing the patient's symptoms. Second, the pollen extracts must be potent, and third, the patient must be able to tolerate a sufficiently large amount to produce the desired result. Usually from twenty to forty injections are required. They are given daily, or every other day, or in some instances, every three or four days, over a period of several weeks or months, until large enough doses are tolerated by the patient to insure prevention of symptoms. If the final dose is too small or if the treatment is stopped too soon in the season, very little relief will be obtained.

Many patients are being given pollen extract injections supplied by the various biological laboratories. These extracts are potent, and their routine use protects twenty-five per cent of cases. Experts, who use much larger doses and many more of them, are able to protect the larger majority of patients. However, the tolerance which is obtained by any injection method is evanescent and disappears quickly following the last injection, in some instances lasting no more than a week, ordinarily lasting from four to six weeks. This means that these pollen injections must be repeated every year, as the tolerance acquired one year is apt to be lost before the next hay fever season comes around.

The third method is a combination of the two described above. Since only twenty-five per cent of patients receiving pollen allergen injections have their tolerance raised sufficiently to avoid all symptoms, it is necessary that seventy-five per cent of these patients have, in addition, a few hours of filtered air

daily, in order to remain perfectly comfortable. For this group a smaller number of hours in filtered air will be necessary than for the average patient who has had no attempts to raise his tolerance.

Consideration of all three methods demonstrates again that the treatment of allergic diseases consists either in so reducing the dose of the specific exciting cause, or so increasing the tolerance, as to produce in the patient the balanced allergic state.

#### ASTHMA

Asthma is the name given to the symptoms which occur when the lung is the organ involved in allergic shock. It is characterized by attacks of difficult breathing, in which the patient is forced to sit up and to make unusual efforts to force the air out of the chest. The attacks often begin suddenly during the night. A patient retires in the best of health and is awakened suddenly by inability to breathe. The breathing is noisy, whistling in character, and can often be heard at a considerable distance from the patient. In the beginning there is very little coughing and that, which is present, is dry and unproductive. As the attack progresses, the cough becomes more noticeable, and finally a plug of thick mucous is coughed up. Following this expectoration, the severity of the difficulty begins to subside, and within a few hours the individual may again be quite normal, and show no results of the harrowing experience of the night. In other individuals the attack comes on more gradually, beginning with symptoms of a "cold in the head" which gradually progresses into the lung. Many of these cases are mistaken for attacks of bronchitis, particularly in children, where the attacks may be so mild for a number of years as to mask completely the asthmatic nature of the trouble. However, usually in those cases one notices wheezing breath sounds which are seldom present in pure bronchitis, and when found, usually mean asthma.

Some patients have asthma only at certain seasons of the year; as for example, those who have it as a complication of hay fever, or those who have pollen asthma without hay fever; others may have attacks at any season of the year. Those who have seasonal symptoms are said to have seasonal asthma, and those who have symptoms the year around are said to have perennial asthma. The perennial asthmatic may be worse at some season of the year, such as the hay fever season, which indicates that he has perennial asthma with a seasoned exacerbation. As indicated in previous chapters, before one can have asthma, it is necessary to have the allergic state and to have made some contact

with the specific exciting cause to which the patient is sensitive, either in quantities sufficient to produce immediate allergic shock or to produce the balanced allergic state. It is the duty of the physician to determine all of the exciting causes which may enter the body from the outside, and are therefore spoken of as extrinsic causes, and all of the abnormal conditions in the body which may tend to disturb the allergic balance, which are spoken of as intrinsic causes.

Asthma may therefore be classified into three groups, extrinsic, intrinsic, and combined. The pure extrinsic cases are those in which there are no physical deformities of the body and in which the exciting causes enter from the outside, being present either in the air or in some food. These cases are the least difficult to diagnose and treat. They give histories of freedom from attacks for various periods of time, often depending on changes of residence from one house to another, or from one community to another. A complete set of skin tests usually affords a number of clues as to the specific exciting causes. When these clues are obtained, the life of the patient is rearranged so as to exclude them from the environment; then the patient is observed to see the effect of the exclusion on the asthmatic attacks. If no attacks have occurred in a period twice as long as the former longest period of freedom from attacks, the patient is brought into contact with the suspected materials, one at a time, to see if attacks can be reproduced. If an attack occurs it is necessary to avoid the reacting substance indefinitely to remain asthma free. If, in spite of attempts at the removal of the suspected influences from the patient's environment, attacks continue, it is obvious either that the removal has not been complete, or that other materials are present which are active allergens for the patient. A check is made to determine the completeness of removal of the known allergens by an investigation of the household furnishings and the wearing apparel, as these are frequently sources of allergens. To do this well the physician must have a thorough knowledge of the materials used in the manufacture of both common and uncommon clothes and furniture. Goat hair, horse hair, feathers, silk, wool, and cotton are present in almost every home in some form or another, and furs of all kinds may be present. In this connection, it must be remembered that most of the furs are those of the more common fur-bearing animals which have been altered by plucking and dying so as to resemble the more expensive and rarer kinds, under which names they are often sold. Some of the furs commonly altered and sold under names of

superior furs:

Species	Altered and sold as
Hare, dyed	Sable or Fox
Hare, white	Fox
Rabbit, white	Ermine
Rabbit, white, dyed	Chinchilla
Rabbit, sheared, and dyed	Sable
	French Seal
	Electric Seal
Muskrat, dyed	Seal, Electric Seal,
	Hudson Bay Seal
Muskrat, pulled and dyed	Mink, Sable
Mink, dyed	Sable
Marmot	Mink, Sable, Skunk
Opossum	Beaver

To determine the presence of other and unknown allergens, samples of dust are collected from various parts of the house, extracts are made from them, and skin tests are made with these extracts to obtain further clues.

These dusts are collected as follows:

The cloth bag is removed from a vacuum cleaner, and it is operated for a minute or two to free the working mechanism of any dust which may be present. A piece of muslin is tied on in place of the cloth bag, and the machine is operated directly or by means of attachments, so as to collect a tablespoonful of dust from the mattress, pillows, and bedding of the patient's bed. The muslin is then removed, folded and properly labeled, and another clean piece is tied on in its place. A sample is obtained in a similar way from the living room rug, from the bedroom rug, from the automobile, and various other sources which might suggest themselves after a survey of the environment. Dust is often collected also from the working environment.

If any of these dusts give positive reactions in the patient, the source of the dust is eliminated from the environment, and a check is made once more as to the effect of this change in the symptoms. Sometimes this method fails also, and it is necessary then either to move the patient to a specially prepared room in a hospital, where the air is so clean of all particles, no matter how fine, that it is impossible to receive any harmful substances through the air; or by means of specialized filters, to produce similar conditions at home. The patient is kept in this special environment until it has been determined with certainty whether or not inhalant factors are responsible for attacks. During all this time, of course, the diet has been arranged also in accordance with the clues derived from the history and the skin tests.

When the conditions necessary for the control of the attacks have been determined, it is imperative to maintain these conditions indefinitely, as attempts to raise the toler-



ance to specific allergens, while they may be temporarily successful, are never lasting, and attempts to do this are reserved for those cases where it is impossible or completely impractical to free the environment of the offending material.

The treatment of pure intrinsic asthma consists in surgical eradication of all areas of infection which can be so removed, and in attempts to raise the body health by the use of all hygienic measures, such as regularity in living, attention to the excretory function, simple nutritious diet, plenty of fresh air and exercise, and occasionally in the administration of drugs and vaccines when indicated, to assist temporarily in the raising of the body's tolerance.

The combined form is relatively common. It consists, as the name implies, of a combination of the extrinsic and intrinsic types, in which usually the extrinsic causes are the more significant as in most instances the intrinsic causes are insufficient to produce symptoms until the body has been placed in the balanced allergic state by contact with doses of the specific exciting causes. Treatment in these cases consists in a combination of the methods described for the pure extrinsic and intrinsic types.

From the preceding discussion of the types of asthma, it can be seen that in general the treatment of this disease consists in its prevention. However, the attacks, particularly, when severe, cause great suffering, and attempts should be made to relieve them as rapidly as possible. The best remedy is epinephrine. The dose is 3 to 5 minims of the 1-1000 solution hypodermatically. Relief usually is obtained in 10 to 20 minutes. This dose may be repeated every hour if necessary. Ephedrine hydrochloride or sulphate in  $\frac{1}{2}$  grain dosage 4 times daily frequently assists in preventing severe seizures while allergic studies are being made.

#### OTHER ALLERGIC CONDITIONS

In addition to hay fever and asthma, there are certain other manifestations of allergy which are sufficiently common to merit discussion. They are produced when organs other than those of the respiratory tract are the sites of the allergic shock reaction. The most common ones are eczema and urticaria. Some cases of mucous colitis, many of the gastro-intestinal upsets in children, and some joint affections are allergic in nature. These conditions may exist alone, but more frequently they are combined with some other form of allergy. Many asthmatics,—twenty to forty per cent. according to different observers,—give histories of eczema during infancy or childhood, and frequently hay fever sufferers report attacks of hives at various

seasons of the year. Also, many infants with eczema are troubled by gastro-intestinal upsets, and occasionally convulsions of an allergic nature are seen, in addition. Foods are the allergens most often responsible for the symptoms, but other allergens are sometimes to blame. As in other forms of allergy, the history and the skin tests produce clues which are followed as described in detail in the preceding chapters. If this method fails to produce complete relief, it is necessary to place the patient on a diet containing no more than two or three foods, preferably those seldom eaten, for a period of from seven to ten days, and to observe the effect of this diet on the symptoms. If they disappear, one new food is added every week so long as no symptoms recur until a pleasant and adequate diet is worked out.

Complete study of all infants and children with allergy is imperative, as by this study allergens which may cause symptoms later in life may be discovered and attempts may be made to avoid them before attacks are produced.

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#### IN MEMORIAM

##### A SKETCH OF THE LIFE OF DR. JAMES STEELE BAILEY, SR.

DR. J. G. CARPENTER.

Stanford.

Dr. James Steele Bailey, Sr. was born in Shelby County, Kentucky, on June 2, 1842, the son of Walter C. and Desdemona O'Connor Bailey. His grandparents, Callom and Isabella Cunningham, pioneer Kentuckians, were originally from Virginia and Ireland. They were members of the Seceders' Congregation.

His childhood and early manhood were spent in Lancaster, where he began his education, later attending Centre College, Danville.

During the Civil War he was a soldier in the Regimental Band; also a clerk in the regiment of Colonel Landrum; a member of Quartermaster Department under Captain George McKenney.

After the War, under the preceptorship of Dr. Henry Clay Herring, of Lancaster, he attended the University of Louisville, Medical Department.

In 1868 he graduated from Jefferson Medical College, Philadelphia, Pennsylvania, and returned to Lancaster, affiliating with Dr. Herring in the practice of medicine and surgery for several months. In September of the same year he settled and afterward practiced in Stanford. He owned a fine blue

grass farm and was an extensive dealer in registered Jersey cattle, being the first person to own an imported registered herd of Jerseys in Lincoln County.

He married Miss Ella Hart of Columbus, Georgia, in 1880, and to them were born two children: Isabelle and Steele Bailey, Jr.

In 1905 he removed to Mammoth, Utah, and formed a partnership with his son-in-law, Dr. Charles P. Harvielle, and his son, Dr. Steele Bailey, Jr. They enjoyed a lucrative practice in medicine and surgery.

Dr. Bailey held offices in various medical societies in Kentucky. He was a charter member of the Lincoln County Medical Society and its efficient Secretary for many years; also served several times as its President. He was Secretary of the Central Kentucky Medical Society for thirty years and at one time its President. In 1903 he was unanimously elected President of the Kentucky State Medical Association after having served as its Secretary from 1883. He was an honorary member of the Southeastern Kentucky Medical Society and the Russell Springs District Medical Society.

For fourteen years Dr. Bailey was a member of the Lincoln County District Board of Pensions, serving under Presidents Cleveland, McKinley, Roosevelt and Taft. He was a Mason and a consistent member and officer in the Presbyterian Church.

Dr. Bailey was a prolific, erudite and entertaining writer for Medical Societies and journals and held his audiences spellbound. He used many unique and beautiful apophegms to illustrate his subject.

He died in Mammoth, Utah, March 29, 1931, in his eighty-ninth year, at the home of his son, Dr. Steele Bailey, Jr. His remains were buried in Stanford, Thursday, April 2, 1931. The funeral services were conducted by Reverend McClain. The following were active pallbearers: A. N. Warren, H. R. Sanffley, William P. Gimes, Jack Routt, E. C. Walton, K. S. Alcorn. The honorary pallbearers were: Doctors J. B. Kinnaid, W. B. O'Bannon, J. F. Payton, J. G. Carpenter, E. J. Brown; Messrs. John B. Foster, H. J. McRoberts, J. B. Paxton and M. F. Elkin.

#### NEWS ITEMS

Dr. Chas G. Lucas, Louisville, Ky., has been elected Secretary of the American Gastro Enterological Association at the Atlantic City meeting, May 6th, 1931.

Raymond M. Evans, M. D., Dennis G. Evans, M. D., Dewey L. Bunting, M. D., announces removal of offices to 615 Breslin Building, Louisville. Surgery, Urology, Roentgenology.

#### WOMAN'S AUXILIARY COUNTY AUXILIARY CONTEST

The County Auxiliary Contest offers every member of the Auxiliary an opportunity to show in a concrete way her loyalty to the organization. In the last issue of the Kentucky Medical Journal we stressed the parts of the Contest requiring immediate action in order to score. As the Contest closes September 1, 1931, it is essential that every member contribute her share **now**, and many opportunities are offered for this.

For each Biography secured of an M. D., living or deceased, who was either born or has practiced or is practicing in your county, an award of twentyfive points will be made. The Biography may be sent to the State or County Historian.

The Medical Profession has a rich history, full of interesting stories of Medical Lore, Medical Practice, and Medical Superstition. If you have such a story to tell, send it to the State Historian and score twenty points for your County Auxiliary.

Mrs. J. W. Sams, Crestwood, Kentucky, is anxious to secure articles for the State Scrap Book and for each one sent her you will secure twenty more points to swell your County score. And the opportunity is also afforded you to gather all articles of interest to your own County Organization as fifty additional points will be given for each Auxiliary Scrap Book brought to the 1931 meeting of the Woman's Auxiliary to the Kentucky Medical Association.

A special effort is being made this year to secure subscriptions to Hygeia and for each one reported to State Chairman, Mrs. R. L. Collins, Hazard, Kentucky, you will be awarded twenty points.

It is going to be a distinct credit to the Organization winning this Contest. Put forth your best efforts and help your County Auxiliary carry off the honors.

#### CAMPBELL-KENTON COUNTY MEETS

The Woman's Auxiliary to the Campbell-Kenton County Medical Society held its regular monthly meeting Thursday, April 2, 1931, with a six o'clock dinner at the Covington Chamber of Commerce. Dainty place cards bore the names of sixteen members. A silver bowl filled with jonquils and sweet peas adorned the table and small corsages of the same flowers served as favors.

Following the dinner the regular business session was held after which the newly elected officers were installed as follows:

President, Mrs. C. A. Menefee.  
First Vice-President, Mrs. W. R. Miner.  
Second Vice-President, Mrs. H. C. White.  
Secretary, Mrs. Stuart Biltz.  
Treasurer, Mrs. N. A. Jett.



Parliamentarian, Mrs. B. K. Menefee.

The newly elected president, Mrs. C. A. Menefee, appointed the following committees to serve for the ensuing year.

Program: Mrs. W. R. Miner, Mrs. E. W. Northcutt, Mrs. N. A. Jett, Miss Pauline C. Haley.

Historical: Miss Viva Bonar, Mrs. C. W. Shaw, Mrs. Meyer Jolson, Mrs. Annabelle Metcalfe.

Membership: Mrs. John Todd, Mrs. H. C. White, Mrs. J. D. Northcutt, Mrs. C. W. Justice.

The meeting then adjourned and the members enjoyed several hours playing Anagrams, trophies being awarded for high scores.

Miss Pauline C. Haley,  
Ass't Secretary.

### HARDIN COUNTY MEETS

On Thursday, March 12, 1931, the Woman's Auxiliary of Hardin County had its annual election of officers at the Brown-Pusey House in Elizabethtown.

The following officers were elected:

President, Mrs. D. E. McClure.

Vice-President, Mrs. C. F. Long.

Secretary-Treasurer, Mrs. J. I. Taylor.

An increase of two new members during the presiding year was reported by the local chairman, Mrs. C. F. Long.

Mrs. D. E. McClure and Mrs. C. F. Long were appointed as delegates, with Mrs. R. T. Layman, alternate, to the State Medical Association, which will meet in Lexington, September 7-10, 1931.

The Auxiliary adjourned to meet again on April 9th.

(Mrs. J. I.) Bessie N. Taylor,  
Secretary.

On April 9, 1931, the Woman's Auxiliary of Hardin County had a luncheon at the Taylor Hotel in Elizabethtown. Out-of-town guests were Mrs. Will Pusey, Chicago, Illinois; Mrs. Geo. Hendon, Mrs. Blanche Blake, Mrs. A. T. McCormack, Louisville; Mrs. J. C. Roy, St. Matthews and Mrs. G. W. Kirk, Shepherdsville, Kentucky.

After the luncheon the President, Mrs. R. T. Layman, called on Mrs. Hendon, State President-Elect and Mrs. A. T. McCormack, Chairman of Public Instruction, to address the group, which they did most gracefully and instructfully. These talks were followed by a round table discussion of the work including the aim of the Auxiliary. The Hardin County Auxiliary found this meeting quite a stimulus to their organization and hopes it may be repeated soon.

(Mr. J. I.) Bessie N. Taylor,  
Secretary.

### MARSHALL COUNTY MEETS

On Friday evening, March 20th, the Woman's Auxiliary to the Marshall County Medical Society enjoyed dinner together with the Society as the occasion of the annual meeting.

Following dinner, the physicians held their scientific meeting in the office of Dr. L. L. Washburn while the Auxiliary continued its meeting at the home of Mrs. V. A. Stilley. A course of study was planned for the summer months and the election of officers held.

Mrs. L. L. Washburn was re-elected President, Mrs. V. A. Stilley, Vice-President, Mrs. Harry Jones, Secretary-Treasurer. The president appointed Mrs. V. A. Stilley, Historian.

Those present were: Mrs. O. E. Eddleman, Mrs. S. L. Henson, Mrs. Errit Pace, Mrs. Harry Jones, Mrs. L. L. Washburn, Mrs. V. A. Stilley.

### PANORAMIC VIEW OF THE WOMAN'S AUXILIARY TO THE A. M. A. IN FOUR ARTICLES

#### 3. Southern District

Mrs. C. W. Garrison, Little Rock, Ark.

The third or Southern District of the Woman's Auxiliary to the A. M. A. may not have moved so rapidly as regards the number of Auxiliaries organized as the other sections but the quality of those existing have proven them to be of the greatest value in promoting the aims of the national body.

Alabama reported three counties organized last year, and is particularly interested in a health program giving especial attention to children with a tuberculous condition. The group visited in Birmingham were alive and interested, and had the co-operation of their Medical Society.

Arkansas reported thirteen counties organized, all giving attention to a health program and trying to raise an adequate loan fund for medical students only. Some of the counties contributed obstetrical kits for use in the rural districts. Many of the Auxiliary members in Arkansas are devoting much time and energy to the Parent-Teacher work and are aiding in the various civic and welfare organizations. All will be gratified when the State is organized 100%.

Florida, large areas of which are sparsely settled, has ten auxiliaries. Some of these are composed of a combination of two or more counties. Proof of the quality of these groups was seen when a large medical organization and its Auxiliary were entertained in Miami, in 1929. Mrs. J. Ralston Wells, the little woman who now heads the State Auxiliary furnishes further proof of their aliveness and interest. Florida with her marvelous fruits, flowers, vegetables and her wonderful sunshine has just

as wonderful and marvelous women in her Medical Auxiliary.

Georgia, which has given to A. M. A. Auxiliary one of its most efficient presidents, Mrs. Allen H. Bunce, has more counties than any other state of its size and has twenty-one of these organized for Auxiliary. They have the full approval and co-operation of the State Medical Association, and having attended their State convention in 1929, the writer will vouch for the fact that no national meeting is more replete with interest and enthusiasm than were found in Georgia, nor have we found anywhere a greater desire to foster the aims and purposes of the national body. No group of women can possibly have greater courtesy, interest and encouragement shown them and their work than is given to the Georgia Auxiliary by the medical men. Mrs. Harrold will bring from her state a goodly report.

Louisiana reports only two parishes organized. Taking into consideration the fact that one of these two auxiliaries has a greater enrollment than have some whole states makes us feel that Louisiana will not be far behind in the number of parishes when her final report of accounting comes in. She is not lacking in interest in any direction because the president of the State Auxiliary, Mrs. Harrold, is of the type who says "We will."

Mississippi reported four auxiliaries last year, and again we are able to speak with assurance of our expectations from this state. The president of the State Auxiliary attended the meeting in Detroit and returned to her state carrying with her additional enthusiasm and determination to gather into the fold more county organizations. This dream will come true. Mrs. Polk was the first to respond to our first circular letter. She has the approval and encouragement of the medical men of her state to go forward.

We may expect to hear of more interest, as well as more auxiliaries in North Carolina. Mrs. W. B. Murphy is the President of this great State, and though we have before us no report for last year, we do know of their interest in the past and believe we may hear the number five at least doubled in their next report.

South Carolina shows thirteen counties organized, and Mrs. Mauldin was prompt to reply with assurances that better things are ahead for next year.

Mrs. L. M. Sackett now leads the one Auxiliary reported from Oklahoma, and we feel certain that others will be added before June.

On invitation from its President we had the pleasure of meeting with the Davidson County Auxiliary in Tennessee early in October, and found a splendid group of women earnestly de-

siring to serve in the most useful way. We found as a member of this Auxiliary the State President, Mrs. Milton S. Lewis. While only four auxiliaries are reported from Tennessee, they are the counties in which the largest cities are located. The distances are great between, but the known interest and enthusiasm of the two counties visited, Davidson and Shelby, we are assured that Tennessee will bring to the next National Meeting a report filled with accomplishments which tend to fulfill the aims and purposes of the Auxiliary.

While we were not fortunate enough to meet with the Texas Auxiliary, we did have a little visit with the energetic and charming president, Mrs. O. M. Marchman. Texas, the mother state of the Medical Auxiliary as it is now recognized, has thirty-five County Auxiliaries, and with a live, interested organization chairman such as Mrs. J. T. Moore is proving herself to be, others will be added before the next State meeting in May. Texas Auxiliaries have earnestly promoted a health program, always working shoulder to shoulder with the fine progressive men of the Medical Association who, in turn, endorse the Auxiliary movement, and are unstinted in encouragement to further development of the organization.

At this time the minds of the Third District are directed towards the Keystone State and the City of Brotherly Love, and many are hoping to be wending their way to Philadelphia in early June that they may partake of the feast of inspiration and absorb the spirit of Auxiliary. Pennsylvania and her neighboring states have grown so marvelously that all are now anxious to sit at their feet and learn. This, the third district, is anxious to contribute its quota of honor paid to the medical men in whose interest we serve, and so it is with high anticipation that all plans are being made to be present at the annual meeting of the A. M. A. June 8-12, 1931.

## BOOK REVIEW

MEDICAL AND SURGICAL YEAR BOOK—Physicians Hospital of Plattsburgh, Comprising Wednesday Afternoon Invitation Lectures, Papers of the Cardiac Round Table, The First Beaumont Lecture, Collected Papers by the Staff. The William H. Miner Foundation, Plattsburgh, N. Y. Publishers.

This volume comprises of those papers presented during the Summer Course at Plattsburgh.



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NEXT MEETING LEXINGTON, SEPTEMBER 7-10.

## COUNTY SOCIETY REPORTS

**Franklin:** The Franklin County Medical Society met at 12 o'clock noon, in the Club Room of the Capital Hotel on Thursday, May 7th, 1931.

The meeting was called to order by the president, Dr. O. B. Demaree. It was moved and seconded that the reading of the minutes of the April meeting be omitted.

Members present were: Drs. Ginn, Lyon, Minish, Darnell, Demaree, Roemele, Jackson, Stewart, Heilman, Budd, Coleman, Coblin and Youmans.

Dr. Minish called the attention of the Society to the Crippled Children's Clinic, which is to be held at Harrodsburg, June 3rd, and assured the doctors having such cases that arrangements would be made for the children to be taken to and from the Clinic.

Dr. Stewart had charge of the program and introduced Dr. Oscar Miller of Louisville, who gave a most interesting lecture on "Childhood Tuberculosis, Diagnosis, Treatment and Prognosis" also showing slides and x-ray pictures of several unusual cases coming under his care. This subject was discussed freely by all members present.

The Society then adjourned to the Hotel Dining Room for lunch.

C. E. YOUMANS, Secretary.

**Jefferson:** The June program of the Jefferson County Medical Society will be as follows:

### June 1st—Case Reports

Transposition of the Viscera—Presentation of Patient, David C. Elliott, M. D.

Ringworm of Scalp by Phallium Acetate, Robert L. Kelly, M. D.

### Essay

Psychopathic Personalities, Wm. E. Gardner, M. D.

Discussion to be opened by John J. Moren, M. D. and Frank J. O'Brien, M. D.

### June 15th—Symposium on Orthopedic Surgery

1. Static Deformities, Harry Goldberg, M.D.

2. Congenital Deformities, R. L. Woodard, M. D.

3. Orthopedic Aspects of Poliomyelitis, John D. Trawick, M. D.

4. Tuberculosis of the Joints, I. A. Arnold, M. D.

Discussion to be opened by W. Barnett Owen, M. D. and James H. Pritchett, M. D.

J. D. ALLEN, President,

J. C. BELL, Secretary

**Calloway:** The Calloway County Medical Society met in the club room of the National Hotel, March 26, 1931, with the following present: Drs. W. H. Graves, W. F. Grubbs, E. B. Houston, B. B. Keys, W. H. Mason, R. M. Mason, Ora Mason, T. E. Hardin, E. R. Blalock, E. D.

Covington, J. V. Starke, L. D. Hale, Park Richardson, C. H. Jones.

Dr. Hale read a very interesting paper on Typhoid Fever which was freely discussed. Dr. W. H. Mason read a very interesting one on Injection of Varicose Veins, which was enjoyed by all, and a lively discussion followed.

After dinner, the following officers were elected:

W. F. Grubbs, President.

Robt. M. Mason, Vice-President.

E. D. Covington, Secretary and Treasurer.

The Calloway Society went on record as condemning the wholesale vaccination of those able to pay for services.

E. D. COVINGTON, Secretary.

**Third District:** The Third District Medical Society met at the Helm Hotel, Bowling Green, on Wednesday morning, April 15th, with the President, Dr. B. S. Rutherford, in the chair.

The election of officers results as follows: President, Dr. S. S. McReynolds, Vice-President; Dr. G. Y. Graves, Secretary, Dr. Jno. H. Blackburn.

A paper on "Some Professional Problems" was read by Dr. Austin Bell, Hopkinsville. This was discussed by Drs. Simpson, Stites and London.

After a most delightful luncheon, the remainder of the program was taken up with a Symposium on Brights disease. Dr. Virgil Simpson, Louisville, discussed the "Classification of the Nephritides, Dr. Hal Neel, Bowling Green, "Treatment of Acute Nephritis" and Dr. Lattie Graves, Scottsville, "Prophylaxis and Treatment of Chronic Nephritis." This splendid presentation of Bright's disease received considerable general discussion.

The next meeting of the Third District will be held in Bowling Green on Wednesday, June 17th.

JNO. H. BLACKBURN, Secretary.

**Central:** The Central Kentucky Medical Association met in Danville, April 16, 1931, at the Gilcher Hotel.

Present: Drs. W. M. Brown, John Harvey, John Scott, Dr. Van Meter, Lexington; Drs. J. R. Cowan, P. C. Sanders, O. L. May, J. M. Acton, Mr. David Silcox, Technician, Danville; Drs. J. E. Edwards, V. G. Kinnaird, W. M. Elliott, Lancaster; Dr. D. B. Southard, Stanford; Drs. C. B. VanArsdall, V. H. Coleman, J. Tom Price, Harrodsburg.

After dinner, Dr. J. E. Edwards, the President, called the Society to order about 8 p. m. The minutes of the previous meeting were read and approved. "The Treatment of Osteomyelitis—A Review" was very ably discussed by Dr. W. H. Brown, and "The Treatment of the Diabetic Patient in the Home" by Dr. John Harvey. A general discussion followed.

The recent death of Dr. Steele Bailey was reported, and a sketch of his life written by Dr.

J. G. Carpenter was adopted, and the Secretary instructed to send the same to the State Medical Journal for publication.

Drs. C. B. VanArsdall, D. H. Coleman and the Secretary were appointed a "Programme Committee" for the next meeting.

Dr. C. B. VanArsdall, Dr. D. H. Coleman, each paid One Dollar, dues, Dr. D. S. Southard, Two Dollars, dues, and Dr. O. L. May, One Dollar, dues. The Society adjourned.

J. TOM PRICE, Secretary.

**Harlan:** The April meeting of the Harlan County Medical Society was held on the 25th in the basement of the Christian Church at twelve o'clock, noon.

Dr. A. H. Lancaster, of Knoxville, read a paper on "Skin Affections of the Feet," and Dr. P. E. Hale, of Lynch, read a paper on "Artificially Feeding the Well Infant."

Those present were: Doctors C. R. Petty, W. E. Riley, Arthur Jenkins, P. E. Hale, W. R. Parks, H. K. Buttermore, S. H. Rowland, W. P. Cawood, Clark Bailey, Harry Linden, E. M. Howard, N. S. Howard, R. P. Ball, N. C. Burkhardt, J. C. Nash, W. M. Martin, M. L. Gunn, A. H. Lancaster, M. M. Riddell, and Miss Sara Nienstedt, R. N.

The Harlan County Medical Society will sponsor a Blue Ribbon Clinic for children from six months to six years of age in the very near future. This clinic is for examination only. The Committee in charge will be Dr. E. M. Howard, Dr. Clark Bailey and Dr. W. R. Parks.

M. M. RIDDELL, Secretary.

**Bourbon:** The Bourbon County Medical Society held its annual social meeting on Thursday, January 29th, 1931 at 6:30 P. M. The meeting was held in the Masonic Building in Paris.

Visitors present: Drs. Rees, McDowell, N. W. Moore, W. B. Moore and Midden, Cynthia, Ky. Drs. Chambers, Harding Reddish, Kavanaugh, Maxwell, Stucky, Armstrong, Vance, Wilson, Thomas, Lexington; Drs. Henry Brown and Doyle, Winchester; Dr. Blount, Leesburg; Drs. M. H. Dailey, R. R. McMillan, E. W. Glass, L. M. Arnsparger and J. Croley, Paris.

Upon motion the reading of the minutes was passed.

Dr. Kavanaugh read a paper on "Pulmonary Tuleremia."

Discussion was opened by Dr. R. N. Armstrong, of Lexington followed by Drs. J. A. Stucky, George Wilson of Lexington, Dr. N. W. Moore, Cynthia, Dr. C. G. Daugherty, Paris, Dr. Maxwell, Lexington, Drs. M. H. Dailey and J. S. Wallingford. The discussion was closed by the essayist.

M. J. STERN, Secretary.





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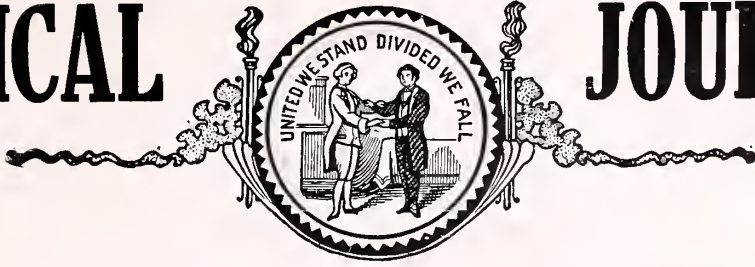
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Annual Meeting, Lexington, Sept. 7-10, 1931

# KENTUCKY MEDICAL JOURNAL



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VOL. 29. No. 7

BOWLING GREEN, KY.,

JULY, 1931

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BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

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VOL. 29 No. 7

BOWLING GREEN, KY.,

JULY 1931

## EDITORIALS

### A NEW COUNTY SOCIETY ORGANIZED

In the County Society Column our readers will find the minutes of an organization meeting of the Fifth District Medical Society, which was held at Warsaw on May 14th, under the Chairmanship of Doctor W. E. Gardner, the Councilor for the Fifth District.

For the past several years Doctor Gardner has been holding conferences of the physicians of this group of North Central Kentucky counties and their value has so impressed the physicians of the district that the organization has been a natural growth. It is particularly interesting that the development of the good road system of these counties has made such meetings possible. It takes less time to get to Carrollton from most of the physicians' offices in this district than it formerly did to get to the County Seat.

Each of the counties in the district has an active County Medical Society, and, of course, membership in the County Societies is pre-requisite to membership in the Councilor District Society. Carrollton, which has been selected as the permanent meeting place for the Fifth District is about half-way between Louisville and Covington and this will make it possible for the members of the two largest medical societies in Kentucky to join with the physicians of the district in making the meetings interesting and successful.

The JOURNAL congratulates the physicians of the Fifth District on effecting this splendid organization

### THE PRELIMINARY PROGRAM

In this issue of the JOURNAL will be found the outline of the preliminary program of the Kentucky State Medical Association which meets in Lexington, September 7th to 10th. All of these subjects are open for discussion, and any subjects that you are particularly interested in, please communicate with Dr. C. N. Kavanaugh, Lexington, who is Chairman of the Program Committee.

The Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association which was scheduled to meet in Bowling Green, was postponed on account of the

tragic death of Dr. J. A. Stucky of Lexington, and the guest speaker, Dr. R. C. Lynch of New Orleans, La., in an automobile accident. This section will meet with the general session in Lexington. Dr. W. P. Drake, Bowling Green, who is President, with his committee, has prepared a splendid program which will be published in the annual number of the JOURNAL, and has issued an invitation for all members of the Association to attend this meeting.

### THE ANNUAL MEETING

The Eighty-first Annual Meeting of the Kentucky State Medical Association will be held in the Memorial Hall, University of Kentucky, Lexington. This magnificent building, erected as a memorial to the men and women who died in the Great War, with a seating capacity of 1,100, completed in 1929, is equipped with a motion picture stereopticon lantern and silver screen, also one of the finest Skinner organs in Kentucky.

The McVey Hall, where the Eye, Ear, Nose and Throat section will be held, has equally as well equipped auditorium, only on a smaller scale, and also has a cafeteria on the third floor where excellent meals will be served by the Domestic Science Department.

The House of Delegates will meet in Dicker Hall, which is located in the Mechanical Engineering Building.

Some interesting facts about the University, which are well worth reviewing, are as follows:

It was established in 1865, has a campus of 94 acres, on which are located 35 buildings.

At the present time the University has seven colleges and schools, three experiment stations, University extension and agricultural extension departments.

The buildings, grounds, libraries and equipment are valued at four and one-half million.

There are 261 teachers, 12 administrative officers, 87 on the Experiment Station staff, 144 including County Agents and Home Demonstration Agents in the Agricultural Extension Division, 84 clerks and 112 buildings and grounds employees of the University.

Thirty-five thousand have attended the University since its establishment. Six thousand have received degrees.

The libraries at the University number

117,000 volumes.

The campus is cool and spacious, and is an ideal setting for the meeting.

### THE POST GRADUATE COURSE

The Post Graduate course, held under the auspices of the Kentucky State Medical Association from June 1st to the 12th, had the largest attendance and was one of the most successful of the summer school that has been conducted by this Association. A faculty of 60 physicians of Louisville gave unstintedly of their time and energy for its success. So appreciative were the doctors attending this school, of the splendid work that was given them, that many requested that they hold night sessions, especially in the laboratory department. Dr. H. V. Noland and fifteen assistants from the laboratory of the State Board of Health, during the second week conducted the evening demonstrations at the request of the 28 members registered.

Dr. P. F. Barbour, Chairman, the Medical Department of the University of Louisville, and the other physicians who gave so generously of their time, are to be congratulated upon the success of this summer school.

### TWO VALUABLE BOOKS

Clinical Diagnosis by Laboratory Methods is a comparatively recent armamentarium in a doctor's life, and while the busy practitioner and surgeon cannot do the actual tests themselves, they are better able to appreciate laboratory reports and to evaluate them if they are familiar with the present day methods. Almost every month different tests that are of value are discovered, and many of the more complicated ones are simplified. W. B. Saunders & Company of Philadelphia has just recently issued the seventh edition of Todd & Sanford's Clinical Diagnosis by Laboratory Methods, and we recommend this book for its clearness, brevity and simplicity in explaining all of the new procedures.

This new edition contains the technic for the Aschheim-Zondek Test for Pregnancy with a simple modification which should appeal to the general practitioner, as well as the obstetrician. To accompany this book this same firm has presented this office with a new American Illustrated Medical Dictionary. The 15th edition of this dictionary defines 2500 new words alone. It has 525 illustrations, 105 in colors. It was revised, re-made, by an editorial committee of the American Medical Association, under the direction of Dr. Morris Fishbein, editor of the Journal of the American Medical Association. The flexible binding and its compactness makes it a suitable reference book and easily accessible.

## SCIENTIFIC EDITORIAL

### THE ETIOLOGY OF CANCER

In your issue for June appears a Scientific Editorial by Dr. Chas. W. Reynolds upon the Etiology of Cancer which would lead one to the conclusion that cancer is possibly of bacterial or fungoid origin.

Skin breaks, mucous membrane or serosal breaks do not because of cancer occurrence at such points carry the necessary inference of bacterial invasion.

As a matter of fact cancer neither in its growth, its local reaction, its metastases, nor its life history is analagous in its behavior to the reactions of the body as a result of bacterial infection. The theory of a specific cancer organism is at the present time no longer tenable, as a matter of fact experimental study would today indicate that the cancer cell itself is the offending cellular element. Lipschutz has claimed to be able to recognize the "Cancer Cell" and to differentiate it from all other epithelial cells by a certain peculiar body found alongside the cell nucleus. His work has however not been verified and can not at the present time be accepted.

There are, however some facts concerning the cause of cancer which we believe are today generally accepted as true and we have discovered a few things about this disease in the past 30 years which are not only worthy of note but seem to bear out the facts above alluded to, discoveries which will also enable us to study much more intelligently the life history of cancer and may lead to the actual elucidation of its real cause.

The Journal of the A. M. A. has mentioned these discoveries and to my mind they are of far greater importance than those alluded to by the writer of the Editorial referred to.

First was the discovery of Fibiger of Copenhagen that the *Periplaneta Americana* (the American cock roach,) was the host for a nematode which when taken into the stomach of the wild rat (by feeding this particular roach) produced in a large number of them a true epithelial hyperplasia with local infiltration indistinguishable microscopically or otherwise from cancer. For this discovery Fibiger received the Noble prize. Again in Japan, Yamagiwa of the Tokyo Imperial University utilizing the rabbit was able to produce cancer of the ear. These experiments were repeated on the guinea pig and the white mouse. These cancers were produced by rubbing daily in the same place with coal tar. Now it has been known for a long time as a result of clinical observation that tar workers and those working in other products of coal distillation were frequently subject to cancer.



The work of the Japanese investigators is however very significant in another direction, namely that the irritation must be maintained for a certain time and in their experimental work this time factor equalled about 1-6 to 1-5 of the average life duration of the experimental animal. One has only to calculate upon the basis of the average expectation of human life to realize the significance of these observations. One then will understand why cancer is a disease of the later human life years.

All of this means that unquestionably, cancer results from repeated and continued similar irritation of certain types, examples of which we see in the "pipe smoker's cancer" of the lip, the "chimney sweep's cancer" of the scrotum, the cancer of the bladder in the analine dye workers, the cancer of the hands in our early x-ray workers, etc.,

And clinically we find cancer most frequently in those regions or localities most subject to repeated irritation, lip, pylorus, cecum, sigmoid, rectum, breast, cervix uteri. In the breast this irritation is both mechanical (nursing) and physiological (the changes with menstruation).

Our own personal observation would also lead us to believe that heredity plays a part in the lessened resistance which may exist in certain families or individuals to the types of trauma concerned in the production of cancer. It would be interesting to apply the Mendelian law to a large group of cancer cases. We can see no reason why it should not, from the lessened resistance standpoint, apply here as to other physical or even mental characteristics. And the germ, the cancer cell, wherein does it differ from the normal cell? So far as we can see in two characteristics only;

1. It has no function in the body
2. It has the power to invade normal tissues, i. e., structures where it does not belong.

The first of these is probably the most remarkable for no where else in the body or under no other circumstances may cells exist which are functionless.

The second quality, that of invasion is seen normally in the transport and growth in the lung of pregnant women of trophoblastic cells from the placenta. After pregnancy these, however, die off, which the cancer cell never does in a live host.

LOUIS FRANK, M. D.

## OFFICIAL ANNOUNCEMENTS

PRELIMINARY PROGRAM KENTUCKY STATE  
MEDICAL ASSOCIATION, SEPTEMBER  
7-10, 1931

### GENERAL MEETINGS

TUESDAY, SEPTEMBER 8TH, 9 A. M.

Call to Order by the President.

Invocation.

Address of Welcome.

Response to Address of Welcome.

Installation of the President.

Report of the Committee on Arrangements.

Gastro-intestinal and Biliary

Tract Symposium

1. The Clinical and Surgical Aspects of Disease of the Biliary Tract.
2. The Clinical and Surgical Aspects of Diseases of the Duodenum.
3. The Clinical and Surgical Aspects of Diseases of the Stomach.

Special Order at 12 M.

Oration in Surgery.

TUESDAY, 2:00 P. M.

1. The Injection Treatment of Hemorrhoids.
2. Toxic Goiter, Early Symptoms, Diagnosis and Treatment.
3. So-called Modern Urinary Antiseptic.
4. Syndromes of Chronic Epidemic Encephalitis.
5. Diabetic Coma.

WEDNESDAY, SEPTEMBER 9TH, 9 A. M.

### CASE REPORTS

Symposium on Diseases of the Kidney

1. Diagnosis and Treatment of Neoplasms of the Kidney.
2. Nephritis, Pathologic Types.
3. Nephritis, Clinical Types.
4. Intravenous Pyelography.

Special Order 12 M.

Oration in Medicine.

WEDNESDAY, 2:00 P. M.

1. Recent Advances in Pre-anesthetic Medication.
2. Ocular Manifestations of Systemic Disease.
3. Etiology in the Diagnosis of Heart Disease.
4. Certain Problems in the Treatment of Fractures.
5. The Proper Use and Selection of Diuretics.
6. Post-operative Treatment in Abdominal Surgery.

THURSDAY, SEPTEMBER 10TH, 9 A. M.

### Symposium on Empyema

1. Difficulties in the Diagnosis of Empyema.
2. Roentgen Diagnosis of Empyema.
3. Surgical Treatment of Empyema.

1. Clinical and Surgical Aspects of Acute Intestinal Obstruction.
2. The Diagnosis and Treatment of Latent Syphilis.
3. The Diagnostic Value of Encephalography and Ventriculography.
4. The Secondary Anemias in Children.
5. Reasons for Urging Thyroidectomy.

THURSDAY, 2:00 P. M.

1. Contraception: Review of Methods and Indications.
2. Post-partum Care.
3. Accidents of Labor.
4. Secondary Anemia of Pregnancy.
5. Eclampsia, A Preventable Disease.

## ORIGINAL ARTICLES

### PERNICIOUS ANEMIA\*

JOHN HARVEY, M. D.

Lexington.

I am very glad to have pernicious anemia as the subject of my paper this morning, because the facts that have been learned within the past few years I am sure are extremely interesting to all of us. The title is somewhat misleading. I would like to say that this has been prepared as a brief review particularly of the things that have come to light within the past few years.

Since the description of pernicious anemia by Addison<sub>1</sub> in 1855 and Biermer<sub>2</sub> in 1867 it has been a problem that has attracted many brilliant and tireless workers to attempt its solution. The difficulty of the problem has continued to hold the interest of the entire profession and recent contributions to our knowledge of the disease have stimulated this interest.

In May, 1926 Minot and Murphy<sub>3</sub> made public results obtained with their diet as a therapeutic agent. Among the reasons given for attempting dietetic treatment was recognition of a similarity of certain symptoms of pernicious anemia to those of diseases associated with faulty diets, namely sprue, pellagra, and beri beri, and that the diet taken by patients with pernicious anemia was often deficient in certain foods.

Partly, at least, as a result of the demonstration by Whipple<sub>4</sub> and his associates that liver was most effective in the treatment of severe anemia produced in dogs by repeated hemorrhage, this was included in the diet.

Further demonstrations of the value of liver in inducing remissions in pernicious anemia were undertaken and accomplished throughout the world, so that almost overnight the prognosis of patients suffering from this disease was revolutionized, and the thera-

peutic achievement has often been paralleled to that of the discovery of Insulin.

In a comparatively short time following the advent of liver feeding effective liver factors were extracted by a number of workers<sub>5,6</sub> and the concentrated extract was promptly made available on a commercial basis.

Once the value of this therapeutic agent was established, attempts were made to utilize this fact to discover that ever fleeting, "something," the primary cause of pernicious anemia.

Almost from the beginning of our history of the disease there has been controversy regarding the relative importance of the increased blood destruction and the abnormal blood formation present in the disease.

All however, looked upon some form of toxic substance liberated within the host as an essential factor in the production of the disease.

Barker<sub>7</sub> in a comprehensive review of the various hypotheses of etiology of pernicious anemia, in April, 1926, states, "Of the many conceptions of etiology that have been advanced, the evidence at present favors hereditary (genotypic) predisposition as the main factor and various influences in the external conditions (especially poisons derived from bacteria, fungi or animal parasites in the digestive tract) as accessory, releasing or provocative factors."

With regard to the various toxic theories it can be said that no toxic substance has been definitely isolated and identified.

It has been noted many times, however, that patients in a state of complete remission following liver treatment still harbour not only the increased bacterial flora in the various parts of the alimentary canal, but frequently obvious foci of infection in other sites as well.

These observations do not harmonize with theories that absorption of toxins from the gastrointestinal tract or from areas of focal infection is the essential factor in causing the disease.

Observations have been made many times upon the familial incidence of pernicious anemia, and upon the incidence of achlorhydria in relatives of patients with this disease. Conner<sub>8</sub> has given a most comprehensive review of this subject and his finding of achlorhydria in 25.9% of 154 blood relatives of patients with pernicious anemia contrasted with finding it in 15.2% of a control group is interesting. In the group between the ages of 40 and 50 years the incidence of achlorhydria in relatives was 46.1% against 16.2% in the control group of similar age, this is striking, since at this age pernicious anemia is most common. Conner remarks,

\*Read before the Kentucky State Medical Association at Medical Association at Bowling Green, Sept. 15-18, 1930.



"Although it cannot be stated that these results prove an hereditary aspect of pernicious anemia, they strongly suggest a familial tendency to the development of one of its most important features."

Castle<sup>10-11</sup> reasoning from the facts that, (1) achlorhydria is a most constant finding in pernicious anemia, and may precede the anemia by years, (2) that following complete gastrectomy pernicious anemia had been known to develop, (3) that the stomachs of patients who were in a state of satisfactory remission following liver therapy were still unable to secure hydrochloric acid and pepsin,<sup>12</sup> (4) that the response of patients with pernicious anemia to liver therapy occurred so uniformly as to suggest a dietary deficiency disease, advanced the hypothesis that pernicious anemia is a dietary deficiency disease and that achylia gastrica may play a part in its causation. Though others have subscribed to the belief that it is a deficiency disease, <sup>8,13-14</sup> the experimental work being carried on by Castle and his associates,<sup>10-11-15</sup> well deserves the profound consideration it has received.

These experiments have furnished evidence that the product of the action of human normal gastric juice upon beef muscle, both in the normal stomach and in vitro, when fed to patients with pernicious anemia, has an effect identical to that produced by the administration of liver or liver extract.

The product was as effective when the incubation was carried on in a neutral medium as it was when done in the presence of hydrochloric acid. The same results were obtained by administering the product obtained by incubating the proteins obtained from beef muscle with gastric juice.

The administration of beef muscle alone, normal gastric juice alone, and beef muscle incubated with gastric juice that had been inactivated by heat failed to influence the blood forming organs. Negative results were also obtained when pepsin, (U. S. P.), normal human saliva and normal human duodenal contents free from gastric juice, were substituted for gastric juice in the experiment.

Relative to the anti-anemic property of hog stomach, first described by Sturgis and Issaac,<sup>14</sup> and Sharp,<sup>17</sup> and confirmed by others,<sup>18</sup> it was found that the mucosa of fresh pig stomach was effective when administered alone, as well as the product of its incubation with beef muscle.

The conclusions arrived at by Castle and his associates as a result of these experiments are clearly stated in detail, and embrace the belief that the essential defect leading to the development of pernicious anemia is inability of the stomachs of patients with this

disease to secrete a substance capable of interacting with protein to produce the material necessary for normal blood formation.

It is also clearly pointed out that the presence of pepsin and hydrochloric acid is not necessarily indicative of the ability to secrete this substance.

He has since reported, though he has not published the results in details, that the gastric contents from two patients with secondary anemia showed achylia, and one person with a normal blood count showed achylia. These contents when incubated with the beef muscle and fed to the patient with pernicious anemia still produced a response.

This is in harmony with the fact that anemia indistinguishable from pernicious anemia has occasionally been reported in patients with normal gastric secretion.

The substance in the stomach and the substance in the liver are different, in that the substance in the stomach is affected by heat and the substance in the liver is not affected by heat to any marked degree.

Davidson and Gulland in their recent monograph on pernicious anemia subscribe to the view that it is a deficiency disease, but apparently consider it a deficiency of a "blood hormone" in the liver. They are adherents to the belief that primarily there must be an hereditary or constitutional weakness for pernicious anemia to develop. This weakness is especially evidenced in the gastrointestinal, the hemopoietic, and the nervous systems, and whether symptoms referable to the digestive tract, to anemia, or to the nervous system will be dominant is determined by which system has inherited weakness to the greater degree.

While the greatest interest, aside from the field of therapy, has been shown in the etiological problem much has been added, or at least revived, that is of diagnostic importance. Opportunity has been afforded to study patients in all stages of remission in greater numbers than before the advent of liver therapy and thus criteria for establishing the diagnosis in the various stages of the disease have been more clearly defined.

The first demonstrable evidence of remission is the appearance in the circulating blood of immature erythrocytes (reticulocytes) that show a fine chromatin network when stained with vital stains such as cresyl blue. These cells, which constitute only about .5% of the red cells in normal blood and are relatively little changed in percentage in the blood of pernicious anemia during relapse, promptly make their appearance in greater numbers following effective therapy reaching 10% to 50% of the circulating red blood cells.

The maximum increase is reached in 10 to 14 days following which there is a fall con-

comitant with an increase in the number of mature erythrocytes.

The lower the initial red cell count the greater is the reticulocyte response, provided the bone marrow is not aplastic. The reticulocyte response to liver therapy in a given anemia, therefore, may be of some diagnostic help, as it has been shown by Middleton,<sup>10</sup> that a rise in the number of reticulocytes does not occur in secondary anemia following the ingestion of liver, though improvement in the blood picture does sometimes follow.

As the red cell count increases there is a lagging behind of the hemoglobin so that the color index may be less than one. When complete remissions with normal red cell counts occur this may still obtain and in addition there is a return of the white cell count to normal both quantitatively and qualitatively.

Other findings that are characteristic of the blood during relapse, such as macrocytosis, anisocytosis, poikilocytosis, the presence of blasts and bilirubinemia, disappear.

Before leaving this particular subject I should like to refer to one characteristic of the myelogenous leucocytes in pernicious anemia, namely, the lobulations of the nucleus as determined by the Arneth count or one of the more recent modifications of this. In pernicious anemia there is a definite increase in the number of the lobulations connected by fine chromatin strands, giving the so called "shift to the right."

According to Davidson and Gulland this "shift" disappears in remissions, but it is interesting to note that Watkins,<sup>20</sup> in discussing classifications of secondary anemias, describes anemia patients, whose neutrophils show this increased lobulation. It will be interesting to observe such individuals over a prolonged period, as this finding at least suggest a possibility of diagnosing pernicious anemia from blood examinations in the pre-anemic stage.

In regard to methods of using liver, and the various extracts and the therapeutic results achieved, so much has appeared in the literature that I shall attempt only a brief summary.

The diet as originally described by Minot and Murphy has been but little altered, and has, as well as the subsequently developed liver extracts, been so uniformly successful in inducing remissions both as regards clinical symptoms and the blood picture that they state. "If a patient supposed to have pernicious anemia is placed on this regimen and has shown little or no improvement at the end of about six weeks, it is highly probable either that liver in one or another form has not been taken in adequate amounts, or else that the patient does not have pernicious

anemia."

In regard to the composition of the diet experience has shown that the anti-anemic substance is the only constituent of great importance, and that restriction of fats or the addition of large quantities of lean meat is not essential for satisfactory blood regeneration though, obviously, a well balanced diet is desirable.

For the benefit of those patients to whom the cost of liver extracts or the more palatable calves liver is a financial burden Castle and Bowie,<sup>21</sup> have devised a method whereby a potent extract can be prepared in the home from relatively inexpensive beef liver.

This method requires one-half pound of beef liver daily the cost of which is the only expense involved.

A fact that has been recognized, as larger numbers of patients have been treated, is that some patients require more liver than others, so that failure to obtain results with the the usual daily dose of from 150 grams to 250 grams of liver (cooked weight) or its equivalent, indicates the propriety of increasing the amount.

There is apparently a variation also in the amounts required by patients in remission for maintenance which has been variously estimated from 200 grams daily to approximately that amount three times per week.

At present patients are being treated successfully with liver alone, extracts alone, and combinations of the two. Where no complicating disease is present the form of anti-anemic substance to be used may be left largely to the choice of the patient, so long as the quantity taken is sufficient. In the presence of nephritis or of diabetes the question of the advisability of liver itself, might be questioned. So far no increase in nitrogen retention has been shown to follow the use of liver and evidence has been brought forward to indicate that the ingestion of liver has an insulin like action upon the blood sugar level in diabetes. It is estimated by Blottner and Murphy,<sup>22</sup> that 180 grams of liver has an effect upon the blood sugar level of diabetic patients equivalent to that of from 10 to 15 units of insulin.

The time which has elapsed since the beginning of specific treatment of pernicious anemia has been too short to have shown what the end result will be, however, certain facts have already been brought to light and should be mentioned.

The return of the characteristic blood picture to normal and the disappearance of the clinical symptoms have been referred to, and in addition it has been demonstrated by Peabody,<sup>23</sup> that, when remission is established the megaloblastic bone marrow disappears and is replaced by normoblastic marrow.



In regard to the lesions in the central nervous system there seems to be some divergent views, but apparently the weight of the evidence supports the view that the cord lesions, once developed, are permanent and that arrest of progress is the most that can be hoped for.<sup>24</sup>

There are few statistics giving the mortality from pernicious anemia since the use of liver has been in vogue compared with the mortality before this form of treatment was instituted. McKinlay<sup>25</sup> has collected data from Scotland and estimates that there has been a reduction there of at least 35%.

Lack of figures, however, does not influence the knowledge gained by the observation of the profession as a whole of the ready response to liver therapy of patients with a disease which in the past uniformly progressed to a fatal termination in an average time of two and one-half years following diagnosis.

As an indirect development from the discovery of this therapeutic agent has come a clearer conception of the nature of the disease, and apparently the organ in which is located the primary defect in function has been determined.

The value of certain time honored findings have been questioned but there is a suggestion that certain other diagnostic procedures may be of greater usefulness so that we may look forward confidently to even more effective control of this disease.

#### REFERENCES

1. Addison, T. On the Constitutional and Local Effects of Disease of the Supra-renal Capsules. S. Highley, Lond., 1855.
2. Biermer, A. Form von progressiver, pernicioser Anämie mit Verfestigungsanlagen in den Circulationswegen. Correspondenz-Blatt für Schweizer Aerzte, 1872, 2-15.
3. Minot, G. R. and Murphy, W. P. Treatment of Pernicious Anemia By a Special Diet. J. A. M. A., 1926, 87-470.
4. Whipple, G. H. and Robscheit-Robbins, F. S. Blood Regeneration in Severe Anemia. II Favorable Influence of Liver, Heart and Skeletal muscle in diet. Am. Jour. of Physiol., 1925, 72-395.
5. Cohen, E. J., Minot, G. R. (et al). The Nature of the Material in Liver Effective in Pernicious Anemia. J. Biol. Chem., 1927, 74., 69.
6. Porter, W. B., Williams, J. P. (et al). Aqueous Extract of Liver. J. A. M. A., 1929, 93-176.
7. Barker, L. F. The Etiology and Treatment of Pernicious Anemia. J. A. M. A., 1926, 87-80.
8. Davidson, L. S. and Gulland, G. L. Pernicious Anemia. 1930 C. V. Mosby Company.
9. Conner, H. M. Hereditary Aspect of Achlorhydria in Pernicious Anemia. J. A. M. A., 1930, 94-606.
10. Castle, W. B., Observations in the Etiologic Relationship of Achylia Gastrica to Pernicious Anemia. 1. The Effect of the Administration to Patients with Pernicious Anemia of the Contents of the Normal Human Stomach Recovered After the Ingestion of Beef Muscle. J. A. M. S., 1929, 178. 748.
11. Castle, W. B. and Townsend, W. C., Ibid. 11. The Effect of the Administration to Patients with Pernicious Anemia of Beef Muscle After Incubation with Normal Human Gastric Juice. A. J. M. S., 1929-178-764.
12. Johansen, A. H. Achylia in Pernicious Anemia after Liver Treatment. J. A. M. A., 1929-92 1928.
13. Means, J. H., and Richardson, W. Impression of Nature of Pernicious Anemia in Light of the Newer Knowledge. J. A. M. A., 1928-91. 923.
14. West, R. Pernicious Anemia as a Deficiency Disease. Ann. Int. Med., 1929-3. 132.
15. Castle, W. B., Townsend, W. C. and Heath, O. W. Observations on the Etiologic Relationship of Achylia Gastrica to Pernicious Anemia. 111. A. J. M. S. 1930 180-305.
16. Sturgis, O. O. and Isaac, R. Desiccated Stomach in

the Treatment of Pernicious Anemia. J. A. M. A. 1929, 93-747.

17. Sharp, E. C. An Antianemic Factor in Desiccated Stomach. J. A. M. A., 1929, 93-749.

18. Conner, H. M. The Treatment of Pernicious Anemia with Swine Stomach. J. A. M. A., 1930, 94-388.

19. Middleton, W. S. The Erythropoietic Response of the Various Anemias to Liver Therapy. J. A. M. A. 1928 91-857.

20. Watkins, C. H. A Classification of Chronic Idiopathic Secondary Anemia with Special Reference to the Morphology of the Blood. J. A. M. A., 1929, 93-1365.

21. Castle, W. B. and Bowie, M. A. A Domestic Liver Extract for Use in Pernicious Anemia. J. A. M. A., 1928-1830.

22. Blothner, H. and Murphy, W. P. Effect of Liver on the Blood Sugar Level. J. A. M. A. 1929, 92-1332.

23. Peabody, F. W. The Pathology of the Bone Marrow in Pernicious Anemia. A. J. Pathol., 1927, 3-179.

24. Fried, B. M. Subacute Combined Degeneration of Spinal Cord in Pernicious Anemia; Treatment with Liver Diet. J. A. M. A. 1929, 92-1260.

25. McKinlay, P. L. Mortality of Pernicious Anemia in Scotland; Influence of Liver Treatment. J. A. M. A. abs. 1930, 94-1446.

#### DISCUSSION

E. B. Bradley, Lexington: I think the Association is to be congratulated on this paper of Dr. Harvey's, which is a very studious effort and shows quite a lot of work.

There is no one disease that has caused more interest among the internists and general practitioners than pernicious anemia. Prior to the discovery of the value of liver feeding, there was no patient that we disliked to see come into the office more than one with pernicious anemia. This has been so changed by the effects of liver treatment that now we welcome one with pernicious anemia rather than with some other form of anemia. We are able to do more for him. In the old days we used to say that if he had secondary anemia perhaps we could cure him, if he had pernicious anemia he would die. Now we feel if he has pernicious anemia the results will be more striking than if he has secondary anemia.

The paper brings out some very interesting points. I was particularly struck with the observation of Dr. Connor that relatives of patients with pernicious anemia, especially between the ages of forty and fifty years, had such a high degree of achlorhydria. The relatives of patients with pernicious anemia had forty-six per cent of achlorhydria as against a control group of only sixteen per cent. This, of course, suggests some familial tendency or some hereditary tendency as one of the causes, at least, of pernicious anemia.

I think the ordinary man who has kept up more or less with the therapy of pernicious anemia has the idea that it is absolutely a deficiency disease, in other words that there is something in liver that supplies this deficiency just as in other deficiency diseases. Of course, that is not absolutely true.

Castle's feeding experiments show that if beef muscle is incubated with gastric juice, normal gastric juice or even gastric juice in the absence of hydrochloric acid, if this muscle is digested and then fed to pernicious anemia patients, it has exactly the same effect as liver. Then, of course, too, it has been discovered by Sturgis and others that the mucosa of the pig's stomach,

which is put out as an extract under the name of ventriculin, has the same effect as liver.

These two points show that it is not just a deficiency of the substance that is contained in liver.

Of course, what the etiology of pernicious anemia is we don't know yet, but it seems at least to be located in the stomach.

Not enough total gastrectomies have been reported showing the development of pernicious anemia to absolutely prove the taking out of the whole stomach will produce pernicious anemia though it has occurred.

Castle concludes that it is the failure of the stomach to secrete a substance which will combine with protein to produce something that is necessary in building up the blood to the normal again. That is a very hard hypothesis for me to understand, some simpler explanation I think will finally be made.

I also wanted to speak of the reticulocytosis, the increase in the reticulocytes, as being such an important diagnostic feature in pernicious anemia. It is often the case that the blood picture will not tell you whether the patient has pernicious anemia or not. Sometimes it is absolutely conclusive and at other times it is only suggestive, and again the picture may be that of a secondary anemia. The absence of hydrochloric acid in the stomach, of course, is a great help, but the feeding of liver and taking daily blood smears to learn the increase of of reticulocytes is of much more diagnostic importance, because in pernicious anemia this practically always occurs, and in secondary anemia only very rarely, and not to such a great extent.

We have had the impression that in pernicious anemia patients with cord lesions, the feeding of liver was more effective than the feeding of the extracts, and in most of the patients that we have seen in the last few years we tried to get them to take liver as well as liver extract. In the first place, it is a good deal less expensive, and most patients now can take liver if it is fixed up in one way or another. There are books out that tell you different ways of preparing liver for pernicious anemia patients. Some of them make your mouth water when you read how they fix it up as a cocktail with catsup and pepper and lemon juice and horseradish. It makes you think you are just ready to take an oyster cocktail.

The advertising value of the patient with pernicious anemia is very great, and I will just speak of that in conclusion, because there is no disease in which there is such a striking change for the better in such a short time. A patient with 10 or 20 per cent hemoglobin, hardly able to walk, is put on the proper diet with liver feeding and in a month is almost well, and his friends see it and wonder who has worked such a miracle. I know of no better way to get all the pale people in the community to you than

to have one of those patients go home and talk about what has been done for him.

**Frank M. Stites, Louisville:** After the splendid review of the study of pernicious anemia by Dr. Harvey, there is bound to be a certain amount of repetition in any discussion. However, there are one or two points that I want particularly to emphasize. He asked me to mention particularly the gastric feedings in the treatment of pernicious anemia. The first work in fractional gastric work was feeding of the raw stomach, the pig stomach being the one selected. The results were very startling when that was undertaken. After liver feeding began and was so successful a trial of various organs of the body, and as the pancreas, the spleen and stomach resulted in the even more encouraging results from gastric feeding. From the fractional gastric feeding you got a more rapid response than had been secured previously by the feeding of the raw liver.

It was rather surprising that the first patient I had occasion to use this on, said it was absolutely palatable. The ground hog's stomach has no taste, and fed with some of the fruit juices or with tomato juice or prepared in some of the various ways, it is really a palatable dish.

The later work, extracting the substance from the gastric mucosa, was not at first satisfactory. The preparation was very disagreeable to take. It had a strong odor. But in recent work after extracting the fat from the gastric mucosa, it has resulted in a stomach extract which is odorless and is palatable.

Our cases of pernicious anemia that we have put on liver extract have shown a very rapid increase in the number of eosinophils, the percentage increasing as high as 20 or 30%. This has been regarded by Schilling and his followers as a very favorable sign. Strange to say, in the feeding of the gastric extract, there has not been this response on the part of the eosinophils, although the routine blood picture has been favorable.

The question arises as to the action of the gastric extract. Castle makes a fairly clear statement that it produces a substance, not chemical, but which acts as one of the polypeptides, resulting in the splitting of the proteins and thus helping your patients.

I was very glad that Dr. Harvey mentioned the other point in the Schilling blood count, the lobulations in the polymorphonuclear cells where your patients on treatment show a very decided left shift. That simply brings out the fact that has been known for some time, that when the patients are beginning to improve, the blood cells which apparently are held back for some reason in the bone marrow are liberated and we have a flooding or a rushing of these new, immature cells into the blood stream, this giving us, of course, the so-called left shift of the Schilling count.



**Andrew Sargent**, Hopkinsville: I am sorry that I did not get to hear the first of Dr. Harvey's paper, but the subject is one that I have been very much interested in, and I believe that I have some observations of my own that I should give to this Society. Having had quite a number of cases, my specialty being chronic diseases, I have come to the conclusion that it is not primarily a disease of the liver or of the stomach. The prime cause of the disease is lower down in the body. I believe it is the colon, especially the ascending colon, that is the beginning, the primary seat of the disease, because we have, with changing civilization, new conditions to face. Fifty years ago I don't suppose there was a doctor who had heard of pernicious anemia. Now we have lots of cases of pernicious anemia, and with that we have chronic arthritis. They are both physiological conditions brought about from the use of the automobile and the failure to use our legs. They are primary conditions that are auto-toxicemic, and with this toxemia we have the concurrent symptoms of irritability of tissue, pain on motion, and fear of everything. These patients are afraid to go to sleep, they are afraid to wake up, they are afraid to eat breakfast, they are afraid to go down town or to go anywhere else unless they go in a car.

I have found by using colonic therapy and keeping the colon perfectly empty, as perfectly empty as it can be, there is no accumulation whatever in the colon, and by applying the sinusoidal current to stimulate the liver and the colon, and giving them red meats of any kind, it doesn't matter whether it is liver or heart or kidney (and I think the kidney is the best, but just so it is red fresh meat, free from salt), and avoiding salt and sugar and fats, giving them exercise, giving them a health-motor, giving them anything to get the abdominal muscles active, I find that I meet with success.

I cannot especially recommend liver, because any one article of diet soon becomes tiresome and you have to change it, and the change is to any kind of red meat.

Avoid constipation. Exercise the abdominal muscles in any way you please. Following these rules, you will find your patients will all improve.

**John Harvey**, Lexington, (in closing): Dr. Bradley mentioned the percentage of relatives found to have no hydrochloric acid in the investigations made by Connor. In the whole group the incidence was only 25.9 per cent.

As to Castle's conclusions, Dr. Bradley seemed to think it was a little hard to digest. If I may say so, I don't think it is hard if one considers that in diabetes, for instance, we have a deficiency disease, not deficiency of any foodstuff in the diet, but deficiency in the secretion of an organ. We don't know the primary cause of diabetes. Castle brings this out in his discus-

sion, and it is not original with me; there we have an inability to handle carbohydrates properly, and fats along with it; in pernicious anemia, according to his theory, we have a deficiency in another organ, the stomach, and an inability to handle proteins of the diet properly.

I want to thank Dr. Stites very much for covering the stomach feeding and the points he made about the Schilling count. That seems to me something which we should study even farther, the Schilling count as an aid to diagnosis in pernicious anemia. The work of Watkins in that respect is very interesting.

In answer to Dr. Frazer's questions about raw liver, there are many people, who consider that raw liver is more effective than the cooked liver or the liver extract, I believe. It may be that having once established a remission in such a patient it would be safe to shift over to the cooked liver or one of the liver extracts or the stomach extract.

Dr. McClymonds' remarks were very interesting about feeding a weekly dose, the amount necessary for a week at one dose. I presume he means after remission has been established. I don't know, I haven't followed it very much, but it is very interesting. I think if one dose per week should be enough, it would rather point toward the fact that there is no difficulty in a patient with pernicious anemia storing the anti-anemic substance in the liver.

I am sorry Dr. Sargent wasn't in to hear the first part of my paper, as I stated there definitely the results that many had obtained, particularly Davidson, that patients with pernicious anemia in complete remission still harbored the same bacterial flora that they did before remission was established, and that this made it very difficult to explain the anemia on the grounds of auto-intoxication, focal infection, infection in the gastro-intestinal canal, and those things which have been very popular theories in the past.

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**Treatment of Pernicious Anemia with Desiccated, Defatted Stomach.**—Desiccated, defatted whole stomach has been found by the authors to be effective in inducing and maintaining a hemopoietic remission in patients with pernicious anemia. Seven to 10 gm. of the dried substance daily, representing 50 to 67 gm. of the fresh organ, have been found effective. A clinical dosage of 10 gm. for each million red blood cells deficit per cubic millimeter offers a wide margin of safety. The response is similar to that following liver extract, and the average increase in the number of red blood cells is about 500,000 per c.mm. per week during the first eight weeks.—Cyrus C. Sturgis and Raphael Isaacs, *American Journal of the Medical Sciences*, 180: 597-602 (November) 1930.

## FETAL LIVER FEEDING IN APLASTIC ANEMIA\*

H. V. NOLAND, M. D.

Louisville.

Primary aplastic anemia is a term which should be used to describe a type of anemia, the etiology of which is unknown, and which when untreated leads to fatal termination in a few weeks or a few months. It is essentially a disease of young persons, with more than seventy-five per cent occurring before the thirty-fifth year. Women, apparently, are more susceptible than men.

As to the pathology of the disease, primary aplastic anemia is characterized by an atrophy of the hemopoietic tissues in the bone marrow, and the replacement of these areas by fat and connective tissue. Small remnants of normal or even hyperplastic tissue may be found. Hemorrhages, subcutaneous, buccal and from other sources are common. The blood picture is characteristic; the most striking feature being the absence of any evidence of regeneration on the part of the bone marrow, in the face of a progressive reduction in hemoglobin and red count. Regeneration on the part of the bone marrow is always evidenced by the presence of immature red cells, namely, blasts, reticulocytes, stippled and poly-chromatophilic cells. In primary aplastic anemia these cells are lacking. The color index is usually 1 or below, the average being about 0.8.

The leucocytes are usually very scanty. All of the granular types—polymorphonuclears, eosinophiles, and most cells—are greatly diminished, so that there is an increase in the percentage of lymphocytes which often reaches 75%.

The blood platelets are greatly reduced in number and all of the associated phenomena of such a condition are seen; namely prolonged bleeding time, and the weak non-retractile clot. The coagulation time is usually slightly though not markedly prolonged. There is no evidence of increased blood destruction.

The onset of the disease is usually insidious, and in some cases there may be considerable period of indefinite malaise. Progressive pallor and weakness are the outstanding early symptoms. Fever may occur. At times it is quite marked and may be suggestive of typhoid fever. Purpuric manifestations nearly always occur and are proportionate in severity to the decrease in platelet count. When the platelets are predominately decreased all the evidences of a symptomatic purpura hemorrhagica may be present.

Secondary aplastic anemias are not uncommon and may present similar clinical pictures. Such conditions may be due to metastatic tumors in the bone marrow, which may occur from hypernephroma and cancer. Tumors of the bones and marrow such as chloroma, and myeloma, as well as a rare condition known as osteo-sclerosis will also mechanically decrease the hemopoietic area. Such is found also in myelogenous and lymphatic leukemia. This picture may be produced in the terminal stage of pernicious anemia, in which instance, it is thought to be due to complete exhaustion of the bone marrow.

Benzol poisoning, diseases of the kidney, cirrhosis of the liver, sepsis, and other conditions may inhibit the formation of blood elements in the bone marrow to a marked degree and may be considered aplastic anemias. In these conditions an etiological factor is present and can be determined. Hence, we regard these anemias as secondary.

Because of the characteristic blood picture the only difficulty in diagnosis should be in differentiating the following conditions: secondary aplastic anemia, depressed bone marrow function, myelophthisic anemia and purpura hemorrhagica. The differentiation between primary aplasia, secondary aplasia and anemia due to inhibited activity of bone marrow function, and myelophthisic anemia may at times be impossible. The history and physical examination will usually reveal the cause. The hemopoietic remnants in myelophthisic anemia will furnish new cells to the circulation, while in aplastic anemia no attempt at regeneration is seen.

The aleukemic phase of lymphatic leukemia, when the lymphatic and splenic tumors are small, may likewise present some difficulty in differentiation. The lymphocytes in this phase of lymphatic leukemia are usually large and occur in greater numbers. They also show deviations from the standard type of small lymphocyte which predominate among the white cells in aplastic anemia.

Serious difficulty may be experienced in differentiating primary aplastic anemia from the acute form of idiopathic purpura hemorrhagica, the clinical picture of which may be quite similar. In purpura hemorrhagica there is a marked and constant lowering of the number of blood platelets in the circulating blood. The cause of this is unknown. The ability of the bone marrow to form red cells and granular white cells is not interfered with. The hemorrhages which occur in this disease are frequent, often severe, and produce a moderate to severe anemia. The response of the hemopoietic tissue is the same as it is in hemorrhage due to any other cause. In

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stained smears are found nucleated red cells, reticulocytes, stippled and poly-chromatophilic cells; the white cells may be normal or slightly increased in number—otherwise the blood picture is identical with that of primary aplastic anemia.

The treatment of primary aplastic anemia has always been considered hopeless. Transfusion is only of temporary benefit. Repeated transfusions may restore the red cell count to normal, but because of the relatively short life of the blood platelets, repeated hemorrhages, dependent on the insufficiency of platelets, will occur and fatal purpura hemorrhagica will eventually take place. Drugs are of no value.

Minot,<sup>7</sup> Murphy and Stetson state that liver therapy is of no value in treating the disease. Edie<sup>2</sup> reports a case in which liver therapy was used without any benefit. Berglund<sup>3</sup> was one of the first to note the stimulating effect of fetal calves liver on the hemopoiesis of normal individuals. In 1929 Upham and Nelson<sup>4</sup> reported a case of primary aplastic anemia treated with fetal liver. This patient was under observation for a period of 2 years. The history, physical examination and blood picture of this case leaves no doubt as to the accuracy of the diagnosis.

This patient was given repeated transfusions, various forms of iron, and was placed on the usual liver diet. These measures, however, had no apparent effect on his blood forming ability. Bleeding was controlled for a few days at a time by the transfusions. Thromboplastin, coagulin, etc., had no effect whatsoever upon it. The patient was kept alive for several months by these measures. Then fetal liver feeding was begun and was given at the rate of 250 grams of cooked liver per day without noticeable effect. One month later they decided to increase the amount to 400 grams per day and to feed the patient raw liver. This amount produced almost complete cessation of bleeding and after subsequent transfusions the patient was able to maintain his red cell count at a constant though low level 1.5-2 m.c.m. Coincident with the beginning of the raw liver diet reticulocytes appeared in the blood. In spite of this evidence of regeneration on the part of the bone marrow the patient was unable to increase his red cell count without help. The amount of liver was increased to 600 to 800 grams per day which was followed by an increase of the reticulocyte count to ten per cent. Transfusions were resorted to at intervals of one to two months. With this assistance the red count was gradually raised from 1,800,000 to 3,310,000 and the hemoglobin increased from 40% to 60%. The platelet count remained quite low, averaging about 22,000. In spite of this no bleeding,

except slight oozing from mild trauma to the gums, was noted. The total white count ranged from six to seven thousand. There was a relative increase in the number of lymphocytes, otherwise it was not remarkable. The reticulocyte count at this time was 1.6%.

The clinical changes which took place in this patient were:

1. Almost complete cessation of purpura.
2. Evidence of blood regeneration, namely increase in the reticulocyte count, the appearance of stippled and poly-chromatophilic cells and an occasional nucleated red cell.
3. The increase in the number of white cells from 1,200 to 6,000-7,000.
4. The absence of an increase in the number of blood platelets and at the same time decrease in purpuric manifestations.

It is unwise to draw definite conclusions from a single case but in this instance one may be justified in assuming that improvement occurred as the result of administering raw fetal liver to this patient.

#### BIBLIOGRAPHY

1. Minot, Murphy, Stetson—Nelsons Medical Research Service.
2. Edie—Pennsylvania Medical Journal xxxii 500, 1929.
3. Berglund—Annals of Internal Medicine.
4. Upham, Nelson, J.—Missouri S. M. A. xxvii, 1, 1930.

#### DISCUSSION

**E. B. Bradley, Lexington:** I have never seen but one case that we have diagnosed as aplastic anemia, and that was this summer, only about six weeks ago. A young white girl about 20 years old had a temperature of 103 or 104, with diarrhea, and her doctor told me she had a leukocyte count of 4500. I supposed before I saw her that probably she had typhoid, as he thought, but on seeing her I was struck particularly by her pallor. Her hands were almost as white as the sheet, though two or three weeks before she had been in perfect health. She had felt a little bad, perhaps, but had not been sick.

The red cell count and hemoglobin on her at that time showed that she had about 40% hemoglobin and 2,100,000 red blood cells, so that her color index was 0.95. Her leukocytes had dropped from the time of the 4500 count, which was made only two or three days before, to about 3000, and the lymphocytes were 50 or 60 per cent. In two more days another count was made. Her hemoglobin had dropped still further; her white cells had dropped more, her red cells had come down until she had finally on about the fourth day after I saw her, only 1,200,000 red cells, with 25% hemoglobin. She had 7000 platelets, although she had no hemorrhages and no purpuric manifestations. Her total white cell count was 1300 with 20% polymorphs, there were no eosinophils, and there was a complete absence of nucleated cells and other immature red cells.

We thought that the diagnosis could only be that of aplastic anemia, although she did not

have the characteristic hemorrhages.

She was given three transfusions, one every other day. After the first two, there was practically no improvement. She was put on ventriculin. She would not take liver or liver extract. After her third transfusion her blood commenced to rise, and I have never seen, even after hemorrhage, such a rapid rise in hemoglobin and red cells. Within two weeks after her third transfusion her hemoglobin was 70, her red cells 4,200,000, the white cells 6500 to 7000, with a normal differential count, 60 to 65 per cent polymorphonuclears. The reticulocytes increased only to about 3 1-5 or 4 per cent.

Whether we have a real case of idiopathic aplastic anemia that got well under three transfusions I am not prepared to say, but we are going to report the case, and I thought as no one else would discuss aplastic anemia, I would mention this case.

I read everything I could find on aplastic anemia, but I didn't see the reference to this fetal liver feeding, or we certainly would have tried that, because we thought of course our patient was going to die. She is perfectly well now. She goes everywhere, goes swimming, does anything she pleases, and has perfectly normal color and normal blood count.

**John Harvey, Lexington:** The thing that interested me most about Dr. Noland's patient, so far as treatment is concerned, was that he gave more liver, increased the quantity of liver, and gave still more liver! It strikes me just off-hand, isn't it more likely to assume that fetal liver contains the substance in greater quantity than the mature liver, rather than essential difference in the substance?

About four or five years ago Dr. Scott and I had occasion to see a case of secondary aplastic anemia following excessive x-ray therapy for some skin condition. He failed to respond to transfusion very readily. He happened to be a butcher, and he could eat more liver and more liver and more liver, and he ate raw liver with quite satisfactory results. That idea just popped into my mind, and I wondered if beef liver in large quantities might not have the same effect as smaller quantities of fetal liver.

The price of Vision, like that of Liberty, is eternal vigilance. To keep our eyes alert and clearer-seeing, we must, today, help one another. Not idly do editors call this work for the Prevention of Blindness "good," "useful," "noble," and "inestimable." They are seasoned judges, who value their words and recognize the worthwhileness of an effort.

They know, too, that even priceless service requires a maintenance cost. It is well to heed the warning; when Blindness comes the aftermath of regret is futile. Do not defer your support.

## DIET IN CHRONIC NEPHRITIS\*

VIRGIL E. SIMPSON, M. D.

Louisville.

### INTRODUCTORY

The limitations of the scope of this paper as fixed by the Program Committee require a brief elucidation. It would seem on cursory thought that the term *Chronic Nephritis* should be sufficiently interpretive, yet, much difficulty has been encountered in attempting to harmonize the pathogenesis of the various forms satisfactory to both the clinician and the pathologist.

The term Bright's disease originally designated such diseases of the kidney as were associated with dropsy and albuminuria. Further study enlarged its original significance and the term Nephritis came to be applied loosely to a variety of processes with little emphasis on etiological factors. Then came the classification of parenchymatous and interstitial nephritis but these terms connoted clinical and laboratory expressions of disease based on necropsy studies and took no recognition of causative factors.

Following on the heels of this nomenclature period the term Nephropathy came to be applied in a broad sense to diseases of the kidney thus affording an approach to a classification from clinical, functional, anatomic and etiological standpoints. Therefore one now uses Nephropathy as a generic term meant to include, when used without qualification, degenerative, inflammatory and arteriosclerotic processes in the kidney.

The classification suggested by Volhard and Fahr, which has been accorded rather wide spread confirmation and approval, appears satisfactory in that it offers an advantageous view point for diagnosis, treatment and prognosis. (Table I.)

With this classification in mind the application of the fundamentals of diet to kidney disease may be studied. Acute processes are excluded and I shall also eliminate Group C—Arteriosclerotic diseases from the present consideration. The other circulatory nephropathies, infection, thrombosis, embolism and chronic passive congestion, are likewise eliminated from this discussion since diet is of little or no importance in their management. Finally, tumors, cysts, hydronephrosis, pyelitis and congenital nephropathies are excluded for the same reason.

There remains as deemed worthy of consideration from the standpoint of diet Group A—the Nephroses and Group B—the Nephritides. It is necessary to keep these groups separate as the dietary principles applicable to the two groups differ materially.

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#### THE KIDNEY IN RELATION TO RESPIRATORY PROTECTIVE ADAPTATIONS OF THE BODY

The human body can be kept alive more than 30 days without food, but it cannot store enough oxygen to maintain life as long as ten minutes. This brings home the necessity in clinical medicine of considering the respiratory, circulatory, digestive, cutaneous and urinary systems not as separate entities, but as forming together a general respiratory mechanism. These various systems maintain an equalizing or even vicarious adaptation capable of keeping up an adequate oxygen supply and carbondioxide elimination not only in health but of furnishing a safety margin of reserve under conditions of disease.

The role of the kidney in such adaptation consists in the increased elimination of acids combined with ammonia and of acid phosphates, thus sparing alkaline phosphate excretion. This aids in maintaining body neutrality or in other words keeping the content within normal range.

The functions of the kidney embrace a quadruple task: by it unnecessary salts and metabolic products are excreted, body neutrality is aided in its maintenance, toxic agents, as well as bacteria, are eliminated and unrequired water is excreted.

Diet has a direct bearing on the first and second of these functions and an indirect influence on the third and fourth.

#### PATHOLOGICAL PHYSIOLOGY OF KIDNEY FUNCTION

The kidney has an important role in maintaining constancy of the physico-chemistry of the blood and osmotic pressure of body fluids. This function, complex in its ramifications when disturbed, consists of the rather simple procedure of excretion. An internal secretion function has been claimed without, as yet, satisfactory evidence of its existence. Probably the only thing tangible resulting from the work along this line has been the financial benefit accruing to proprietary interests which offer to the profession products made from kidney substance alleged to correct pathological processes in kidney structure. That the kidney has a synthetic function has been claimed, with studies tending to show that the metabolic products eliminated by the urine are not brought preformed, in their totality, by the blood flowing through the kidney. This is apparently true of at least two urinary constituents—hippuric acid and ammonia—as they do not exist preformed in the blood in amounts recovered in the urine daily. However interesting these potential functions may be to the scientific investigator it remains a clinical fact that the only results of disturbed renal function are manifested by an increase in urinary constituents in the blood and a reduction of these

same constituents in the urine.

Since the major kidney function consists of excretion and as excretion in terms of renal function implies concentration it may then be stated that impairment of renal function may be expressed in terms of limitation of concentration power. Inability to excrete a urine of a normally high specific gravity, to concentrate a urea output of at least two per cent, to raise a calcium concentration in the urine above that of the blood, to exhibit a hydrogen-ion concentration of the urine as elastic as the variations of alkali-acid content of diet, to concentrate chlorides or phosphates or albumin or even sugar, all mean impaired renal function.

Such a summarized statement couched in gross terms embracing a conception of gross lesions and attended by gross results is not intended to convey the conclusion that chronic nephritis may be handled clinically in a routine or standardized manner. I consider the control of the nephritic's habit and his dietetic regime, in its broadest sense, to be the most effective means in the doctors hands for prolongation of the nephritic's life. But it is impossible to set up a diet list or set down rules for living, routinely adaptable and helpful to every nephritic as they pass serially under a doctors care. By individualization of a dietetic regime founded on the broad principles underlying our present conception of impairment of renal function, and by individualization alone, can the greatest service be rendered.

The time at my disposal permits no exhaustive consideration of the general conception of impairment of renal function, nor is it necessary in order to make intelligible what is to be said concerning diet in relation to chronic nephritis. But a resume of the principles involved in the general theory seemed permissible, even essential.

**Fluid Intake:** The presence or absence of edema and the degree of impairment of renal function are the two chief factors which determine the amount of fluid desirable, or permissible. If there be no edema and if the renal function be good the patient should be permitted to take a normal water requirement as determined by age, sex, activity, season and etc. The previous habits of the patient are not always a reliable index to a normal requirement and the intake may become a mandatory matter for the physician. Merely as an index for such determination it may be indicated that an average man should take approximately 2000 c. c. of water daily.

In cases with edema, but with good renal function as shown by the concentration-diuresis test, some restriction of water intake is desirable. The degree of restriction should be determined by the amount of edema together





nitrogenous matter and as a corollary, an increased water output means an increased nitrogenous loss. It is in this fashion that a polyuria becomes a compensatory process in eliminating solids in renal unsufficiency. A polyuria, may, however, as an abnormal effort of the kidney result in fatigue and, therefore, a diminished renal output. I have seen this in glucose solution injections, both by vein and in the tissues.

On the other hand, a drastic curtailment of water intake may operate as a definite contributing factor in establishing renal insufficiency. An inadequate fluid intake results in diminished excretion of urine, an increased blood and tissue concentration and a speeding up of protein catabolism and may even occupy the role of chief cause of renal insufficiency.

**Salt:** The relationship between salt and edema has a rather interesting chapter in the literature of kidney disease. In acute nephritis edema often appears in a few hours; salt can have no etiological relationship in such a rapid scene shifting process. In chronic nephritis and nephrotic states there is often what Widal and Javal termed a pre-edema stage and they were able to increase or lessen the weight of such patients at will by changing the salt content of the diet.

The edema of kidney disease does not depend directly upon weakening circulatory force as is true of the edema of cardiac failure. In the latter gravity determines the location of the beginning edema while in the former edema begins in sites where loose connective tissue is abundant. In the kidney edemas effusions into serous cavities usually follow marked skin edema but sometimes are observed before edema of the skin obtains; pericardial effusions are rare and so is hydrathrosis. Increase in cerebro-spinal fluid, apparently, does not occur and when pulmonary edema supervenes it is usually the result of cardiac weakness.

The pathogenesis of edema embraces a number of factors—the capillary wall with its branching Rouget cells regulating its caliber, the forces on either side the capillary wall determining the direction of passage of water or crystalloids, the hydrostatic pressure of the capillary blood, the colloid osmotic pressure of plasma proteins, the antagonism between these last two factors and finally, salts. It is the role of this last factor which we wish now to consider.

The importance of sodium chloride in edema pathogenesis has been recognized since 1903 when the observations of Widal and Strauss were simultaneously published. Until 1911, when Pfeiffer's work was published, the chloride ion was almost universally accepted as the responsible chemical. He found that other sodium salts caused water retention and this was confirmed by

Mangus-Levy in 1920 and Blum in 1925. It is now known that potassium, calcium and ammonium chlorides do not cause water retention but may probably be classed as diuretics. The next step was the determination that sodium retention was not the initial factor in the production of edema. It was found by Fishberg that the sodium chloride concentration of the blood plasma could rise to the height of 1100 mg. per 100 c. c. of blood without clinical edema. It seems, therefore, that salt retention facilitates edema only after other factors have established the tendency toward edema occurrence. The retention of sodium chloride tends to cause the retention of an equivalent amount of water, thus hydremia results. An increased intake of salt causes little increase in salt elimination; expressed differently, there is no tendency by the body to establish a sodium chloride balance between intake and output. Excessive salt is merely piled up in the edematous fluids of the body and these fluids are further increased by the increased thirst induced by the increased concentration of the tissue salt. The experiments of Bohne observing the effects of injections of salt into animals have furnished the strongest argument that salt bears a relationship to nephritic toxicosis. Confirmation of his work, however, has been lacking; later work has shown that nearly the same symptoms with exitus occur when either a decided loss or intake of salt is maintained in the experiments. A decided change from a normal salt intake with a view to control a nephritic toxicosis, in the absence of edema, would appear to have no clinical value.

Since table salt is a large source of sodium supply, sodium chloride assumes importance in kidney lesions with edema tendency or actual edema. Salt restriction has become an almost universal method of relieving edema. There is considerable variance of opinion as to the minimal necessary salt intake to avoid symptoms of salt deficiency. Allen thinks that such symptoms do not occur until the salt loss gets below 0.5 gm. per day while Von Norden reports such symptoms on a salt allowance of even 8 gms. per day. In this country the average daily salt ration is about 10 gms. Only a recognition of marked variations in individual requirements can harmonize these observations. Such variable individual requirements depend largely on the kind, as well as, the method of preparation of food. Great restriction of salt results first in loss of appetite and in its wake follow easy fatigue, loss of weight, nausea, vomiting, headache, cardiac weakness, low blood pressure, pains in legs, etc. A salt-free diet is neither practicable nor desirable. Such an expression is akin to the order for a sugar-free diet for a diabetic. The arrangement suggested by Strauss is satisfactory and in-

telligible. He arranges salt restriction under three heads, strict—less than 2.5 gm. daily, medium—less than 5 grams and mild—less than the usual ration.

There is no great difficulty in directing salt restriction in the diet since the larger part of the salt intake derives from its addition to foods during preparation. Most of the raw materials used as foods are salt poor. (Table 2.) Milk, cheese, butter, preserved meats and fish and breads being the most important exceptions. In a normal diet of an average person which includes these latter articles the salt intake, exclusive of salt as a condiment, will not exceed 3 grams daily. The impalatability of a salt-poor diet can be overcome, partly, by using such highly flavored substances as pepper, mustard, vinegar, lemon juice, spices, garlic, onion, etc. The rather commonly held opinion that such condiments and foods are harmful to kidney structure is not supported by experimental work. Likewise, the use of such substitutes as sodium formate, bromide, etc., is not rational since it is the sodium ion that constitutes the edema-aiding ion.

#### PROTEIN METABOLISM

The immediate effects on the kidney of feeding a high protein diet has been the subject of no little experimental work the past few years and, so far, the results obtained and conclusions reached have not been harmonizingly uniform. Such a diet on the one hand has been reported to have caused glomerular, tubular and interstitial changes; these changes have been variously interpreted as being the result of the amino-acids, pressor principles and high urine acidity. On the other hand equally competent observers have been unable to produce any renal changes of significance by even exclusive meat diets. The question, therefore, must be considered *subjudici* as yet. Certain it is that glomerulo-nephritis is primarily of infectious origin. It is also certain that such lesions as have been reported as produced by meat diets bear no resemblance to the arteriosclerotic changes found in the kidney in hypertensive heart disease.

Urea: The most important single urinary constituent is urea. It is probably the normal physiological stimulant to renal function analogous to the role of carbondioxide as a normal stimulant to the respiratory center. Its antecedent is protein and must derive, to a large extent, from protein offered in the daily diet. From a chemistry viewpoint protein break-down is accomplished through a change of the amino-acids to ammonia which joined to carbon dioxide forms ammonium carbonate from which urea ultimately emerges.

The amount of urine thus formed from an

average diet results in a normal individual in a blood urea level of from 15 to 20 mgms. per 100 cc. of blood. Age affects this level somewhat since in older persons with no demonstrable kidney lesion the higher normal level is obtained while the lower level is maintained in children and young adults. This concentration of urea in the blood results in the excretion of from 30 to 40 grams of urea in the urine daily.

It is of practical importance in this connection to note that in certain normals, as well as in others with interstitial nephritis an abnormally high concentration of blood urea appears necessary before their daily loss of urine urea can be eliminated. From this viewpoint blood urea is not a valuable index to kidney efficiency until there has obtained gross damage to kidney structure. In fact, in animal experiments 75% of renal structure may be destroyed before blood urea actually rises above normal levels. A comparison then of symptoms and blood urea findings may reveal a patient with symptoms improving apparently yet an early fatal termination is indicated by a rising blood urea while again a patient presenting similar symptoms but a falling blood urea promises recovery. It is further of especial interest to the clinician to know that in cardiac decompensation and in infections the blood urea rises to relatively high levels because the renal circulation is poor rather than because of renal disease.

If the concentration test shows a urine of less than 1020 Sp.Gr. and if the blood urea has passed beyond the upper level of normal limits some protein restriction in the diet becomes necessary. (Table III.) Maximal protein restriction can be maintained for relatively short periods only, hence is applicable only in acute exacerbations grafted on chronic conditions or at the beginning of treatment of chronic cases with nitrogen retention in the blood. Patients in this group may live several years and nitrogenous equilibrium must be maintained or emaciation, cardiac weakness, anemia and etc., will supervene. Nitrogenous equilibrium can be maintained in average cases on 0.75 mg. of protein per kilogram of body weight inasmuch as these patients are not capable of taking a great deal of exercise. There is no convincing evidence in the literature that the end-products of protein metabolism are harmful to the kidney structures or that the pathological process is hastened by their elimination by the kidney. It follows as a corollary, then that only accumulation of protein terminal products in the blood constitutes adequate reason for drastic reduction in protein intake. In 1909 Arnold published a diet chart designed for use in nephritis which was subsequently revised by Walsh and



O'Hare and later by O'Hare and Vickers and which has come to be recognized in the literature as O'Hare's diet sheet. This sheet in its original form or some modification makes it possible for a fairly accurate approximation of protein intake to be made in the home without the assistance of a dietician or trained nurse. (Table IV.) The minimum level of protein metabolism is not obtained by starvation, but by a diet low in protein and high in carbohydrates. Under starvation conditions the kidney eliminates about eight grams of nitrogen each 24 hours while only 4 or 5 grams would be eliminated in a high carbohydrate intake. This procedure not only spares protein metabolism, but spares the kidney as well.

Another misconception entertained by the nephritic, who in turn acquired it from the profession of two decades ago, is that meats are particularly hurtful. As a matter of fact the difference in protein from different sources is of little significance in nephritis. Whether it be derived from the animal or vegetable kingdom is of small import; likewise whether it be from red or white meat is illusory. It is the quantity of protein consumed daily and not the kind that signifies. Many nephritics, and many doctors too, have an actual meatphobia though milk is freely used. It is time the profession understood the truth of protein chemistry, protein metabolism and protein end-product retention. Improvement in body tone and of anemia is too often noted after adequate nitrogenous food allowance to be longer ignored as a clinical fact. The author (Table V.) has modified the O'Hare diet sheet so that it offers a broader control of the food intake for the nephritic than that covered by protein content alone. The protein content remains the basis of the diet sheet for the nephritic, but contemplates the possibility of restriction of foods which contain oxalic acid with regard to the acid-base content on the one hand and the relative proportion of magnesium and calcium on the other.

Another common idea held by many physicians is that red meats are more deleterious than white meats. The explanation offered is that red meats contain more extractives such as xanthin, hypoxanthin, etc. and that these substances are injurious to renal structure in their elimination. As a matter of fact there is very little difference in the extractive content of red and white meat. Also there is no evidence from either clinical or experimental study that such extractives are nephrotoxic in the quantities consumed in the daily ration. I wish to emphasize that the method of cooking determines the extractive content of meats more than does the color.

Roasted or broiled meats contain more of these substances than do boiled meats. Perhaps the most that can be said in favor of white meats is that they are more easily digested thus more desirable for patients with gastro-intestinal disturbances. Again it has been urged that more toxic substances are found in red meats because under present day storage facilities a longer period elapses between time of slaughter and consumption. I believe that cold-storage fowl and even fish are exhibited for food consumption now to as great an extent as is true of beef, mutton and pork. Albuminuria may be produced in healthy animals by feeding large amounts of egg albumin especially uncooked but in allowable amounts the protein of eggs is no more injurious in kidney lesions than other forms of protein.

Another fallacy in protein metabolism of the nephritic is milk. An exclusive milk diet is yet a common regime for nephritics, forgetting that one litre of milk furnishes 31 gms. of protein and if enough milk is given to meet the caloric requirements of a patient he might just as well take a better balanced ration. One liter of milk furnishes only 598 calories, therefore, at least 3 liters would be required per day to meet the needs of an average bed case. This 3 liters would furnish 139 C. H., 93 P.-93 F. 2550 cc. of water with only 1795 calories. As a further objection to such a diet it is recalled that 3 liters of milk furnishes 5 gms. of salt; certainly, if edema be present 2550 cc. of water and 5 gms. of salt would offer small prospect for benefit. However, the Karell diet for example is popular with a large part of the profession. (Table VI.) It provides for the elimination of all foods except 20 ounces of milk daily. Whatever improvement obtains from such a dietetic management is the result of a low salt, fluid and food intake and might just as well be secured from a diet more properly balanced, but embracing the same principle of low salt, fluid and protein intake.

Karell's paper was published in 1866 and was advocated in the treatment of organic disease of the heart and blood vessels, rheumatic and gouty diseases, as well as advanced kidney disease. Its popularity in the United States received its greatest impetus perhaps through its advocacy by Weir Mitchell who probably was primarily impressed with its value because one of the first injunctions set forth was that the patient must be put to bed and this, of course, dove-tailed with the Mitchell rest cure. The milk was permitted to be taken either raw or boiled and either hot or cold as the patient preferred. This is essentially a starvation diet and should be instituted only in cases in extremis.

One of the trials of such a diet from the patient's viewpoint is the thirst experienced. Since 85% of milk is water such a diet then affords only 360 cc. of fluid as a 24 hour water supply. An objection to a routine use of such a diet rests on the fact that no recognition is taken as to the individual kidney function being dealt with. 360 cc. of water is a very low fluid intake and yet it may happen that even that amount is more than a given kidney may be able to excrete, while on the other hand in the very next patient with severe clinical symptoms the kidney may be able to eliminate 600 or even more cc. of water daily, and in such case this latter patient would be needlessly subjected to a fluid restriction which was not only disagreeable to the patient but which permitted too great concentration of end products of metabolism in both the urine and the body fluids. Again this diet is wholly inadequate to maintain a patient even completely at rest; as will be observed in the table it furnishes only 40 grams of C. H., 27 of P. and 27 of F. with a total heat unit intake of 472. There is no justifiable ground even in severely ill nephritics for such marked reduction in C. H. intake. These patients as a rule exhibit little, if any deficiency in C. H. metabolism and if any such deficiency does exist it is not the result of the nephritic condition except indirectly. I am quite convinced that the indication sought to be met in cases in which the Karell diet is supposed to be indicated can more satisfactorily be encompassed by the addition of fruits, vegetables, and the purer forms of sugar such as lactose, glucose, saccharose, syrups, honey and etc. (Table VII).

I dislike standardization in therapy in principle whether it is applied to the young or old. In acute nephritis the severity of the process should be the guide for dietetic as other therapy. If edema be absent and the urinary output not markedly reduced it would seem unwise to put a child on an unnecessary reduction of either fluid, food or salt. Where a marked oliguria and edema obtains drastic reduction in both fluid and food may be demanded and even a salt free diet enforced.

Chronic nephritis is rare in infancy unless there be a congenital malformation. In childhood it occurs, as in adults, either as a terminal process, to an attack of acute nephritis or as a primary entity in lues, chronic infections, etc. The reasoning that there is no relationship between acute nephritis in childhood and chronic nephritis of adult life does not appear to me to be sound. While at least debatable the limits set for this paper preclude further discussion.

In children as in adults the excretion of urea by the kidney depends upon the non-

colloidal liquid part of the blood passing through the glomeruli. Likewise, urea concentration in the blood bears a definite relationship to the diet. The only difference in the blood chemistry of two groups being a slightly lower level of normal for the child; 15 to 25 mgm. per 100 cc. of blood being the normal levels for adults while 10 to 20 constitute the normals for children.

The growing child requires approximately 1.5 gm. of protein per kilo of body weight to maintain nitrogenous equilibrium. This amount may be reduced during an illness which lessens energy production by rest in bed though a febrile process may entirely offset this factor. A 1.5 gm. per kilo body weight may be accomplished by the omission of meat, fish and eggs and using milk, cereals, bread and potatoes. I see no particular advantage in such substitution since as elsewhere emphasized there is a negligible difference in protein from different sources.

#### NEPHROSIS

A different dietary program appears to be indicated in chronic nephrosis from that usually indicated in chronic nephritis. This idea was suggested by Epstein who presented the hypothesis that the edema was due to a reduction of colloid which lowered the osmotic pressure of the blood. This condition, he thought, was due to the steady loss of albumin in large quantities. He further found that there was an increased lipid content in the blood due, he thought, to impaired nutrition. Epstein found that blood sera is very much reduced in nephrosis, sometimes to the extent of 60 to 75% of the total serum protein and that the daily loss of protein through the kidney ranged from 18 to 26 grams per day. When it is remembered that the total protein in the blood of a patient of average size is about 210 grams it is not difficult to appreciate how much a drain on the blood serum such a daily loss proves. Starling found that the osmotic pressure exerted in blood proteins amounted to about 4 mms. of Mercury for every one per cent of protein. Reducing the total loss of serum protein to terms of osmosis it will be seen that a 60 to 70% loss means a loss in pressure amounting to 20 to 24 mms. of Mercury which is certainly sufficient to markedly disturb the equilibrium of fluid exchange between blood and tissue fluid. Briefly then Epstein's hypothesis may be stated as "The loss of protein incurred by the blood serum through the continuous albuminuria causes a decrease in the osmotic pressure of the blood which favors the absorption and retention of fluid in the tissues." Based on this theory one object through diet is to restore the protein content of the blood to or near normal by



furnishing a protein intake of from 120 to 240 grams each 24 hours. Such a protein allowance means that meats, egg white, sea foods, gelatin, baked and lima beans, peas, lentils, rice, oatmeal, mushrooms, bananas and milk must be used liberally, water to 1500 cc. and salt to palatability. It is possible that the urea content of such a high protein diet may induce diuresis explaining a part of the benefit such a diet affords.

Experimentally it has been found to be possible under a sustained low protein level to develop degenerative renal lesions quite rapidly. When blood was removed at intervals from animals, with corpuscles returned to the circulation suspended in a protein-free isotonic medium, in such conditions blood urea is usually not increased. In the course of time such unfavorable blood compositions resulted in serious changes in the kidney; fatty infiltration in the basement membranes of the tubules, shrinkage of the glomerular tufts, swelling of the convoluted tubules, desquamation of the tubular epithelium and extrusion of nuclei, hyaline droplet formation and later glomerular disorganization and atrophy. A secondary contracted kidney may well follow a long standing low protein anemia, the direct result of tubular atrophy and scar tissue replacement. The edema that occurs in famines is explainable on the same basis. The *sine quo non* in the management of such conditions is the liberal allowance of protein so that the kidney structures will be nourished by a normal blood media as well as bathed for excretion purposes by normal serum protein.

The other indication thus suggested by Epstein is the removal of the excess lipoids. This implies a diet low in fats.

To promote the maximum utilization of this high protein diet a low carbohydrate allowance was likewise suggested. Such a diet, then, embraced the features of a low carbohydrate, a high protein and a low fat ratio. (Table VIII.)

#### UREMIA

Uremia is not the result of retention of a single metabolic product, but rather of a number of urinary constituents chiefly those of protein origin. It is a complex autointoxication since no single substance when injected experimentally is capable of producing the complicated symptom-complex uremia.

An analysis of the symptoms of uremia strengthens this conclusion viz:—certain of the nervous symptoms seem to be due to products resulting from intestinal putrefaction; dyspnea is due to acid metabolite retention; muscular twitching to retention of phosphorus which lowers blood calcium; dry skin and mucus membranes is the result

of polyuria or vomiting which in turn are the result of increased molecular concentration of the blood.

Since water and carbon dioxide can be eliminated by the skin and lungs even in the presence of grave uremia there would appear to be no good reason for restriction of fats and carbohydrates in the diet of the uremic patient. It is the deficient elimination of the end products of protein metabolism which contributes, from a dietetic viewpoint, to the uremic intoxication. The heat and energy requirements of the body can be met by an adequate fat and carbohydrate intake and it remains only to determine the degree of protein restriction. Temporarily, the loss of protein by the body metabolism obtaining can be ignored since the oxidation of fats and carbohydrates spares some protein requirement further aided by the small amount of protein-content of the carbohydrate allowance, hence, in a full-blown uremia it is admissible, even advantageous, to eliminate all foods containing appreciable amounts of protein. In severe cases it may be desirable even to withhold such carbohydrates as contain high protein percentages.

Many patients in such extreme conditions exhibit poor capacity for fat digestion and it becomes desirable to restrict the fat intake. In such cases, then, the dietary adjustment is met by a high-carbohydrate, low protein and moderate fat scheme of feeding. Such a scheme usually results in a material reduction of the non-protein nitrogen of the blood. Such a dietary will furnish as little as 0.10 grams of protein per kilo of body weight daily and this minimal intake may be continued for as long as three or four weeks provided the patient can take the needed fats and carbohydrates to conserve the body protein.

While the stationary or decreasing non-protein nitrogen blood level may not always result in clinical improvement or death may not even be postponed, yet, in most cases there does obtain an appreciable relief from the headache and somnolence.

In the more chronic cases with a less urgent clinical picture it is not necessary to restrict protein intake to such a degree. 0.25 grams per kilo of body weight may be allowed per day and such a diet may be continued without apparent ill effects for two or three months. As rapidly as the symptoms will permit the protein intake should be raised as I am convinced protein deficiency results in disturbances often that to be only a part of the clinical picture of the primary kidney deficiency.

#### ACID CONTENT

In the recent tendency toward emphasis of vitamins, iron and etc. such food content as

protein, fats, calcium, oxalic acid and etc. are too likely to be lost sight of in the latter day enthusiasm for so-called modern knowledge. Oxalic Acid is of no small importance in my opinion when undertaking to frame a diet to relieve a crippled kidney of overload. So long as it remains in solution little or no harm comes from its elimination by the kidney structures but since calcium is always present in the blood its combination with oxalic acid becomes a matter of moment. Calcium oxalate elimination through the urine is usually a matter of ordinary dietetic elimination and in such normal amounts would probably cause no trouble, but when it is remembered that oxalic acid crystals in abundance may not only give rise to dysuria, but hematuria as well, it requires no undue stretch of imagination to visualize more or less damage done to the kidney structure by its elimination. Most of the leafy vegetables now so much emphasized in diet contain appreciable amounts of oxalic acid. (Table IX.) Spinach contains about 0.5 per cent, beet greens contain even a higher percentage, while New Zealand spinach contains even more. Since vegetables of the so-called leafy type are more or less desirable they can be supplied to the diet by exercising care in selection of such representatives as contain a minimum or no oxalic acid. Such a list includes dandelion greens, kale, turnips and mustard greens.

#### SUMMARY

A classification of Nephritis or functional,

anatomic and etiologic grounds seems desirable if a rational dietary program is to be followed.

The role of the kidney in the maintenance of constancy of the physico-chemistry of the blood and the osmotic pressure of body fluids is discussed. Individualization of a dietetic regimen based on broad principles giving existence to the present conception of renal function impairment is urged as desirable. The intelligent control of fluid intake is considered in detail since one case may helpfully carry a polyuria while another may require drastic curtailment of fluid intake.

The relationship of sodium chloride to edema is analyzed.

Protein metabolism and retention of its end products is considered in relation to protein intake and fallacies of various dietaries for the Nephritic are vivisectioned.

The loss of blood protein by continuous high grade albuminuria and the resultant need for a high protein intake is thought to be therapeutically sound.

Uremia is considered a complicated symptom-complex but restriction of fats and carbohydrates in an uremic diet is not thought advantageous.

The profession and public alike are thinking so much of vitamins, iron, etc. that proteins, salts, acids, etc. have been well-nigh forgotten and a resurrection of their entombed values is sought.

Tables of foods covering the varied indications to be met are given.

TABLE I.

#### VOLHARD AND FAHR CLASSIFICATION OF THE NEPHROPATHIES USUALLY INCLUDED UNDER THE GENETIC TERM OF BRIGHT'S DISEASE

- A. Degenerative diseases: NEPHROSES, genuine and of known etiology, with and without amyloid degeneration of the vessels.
  - (1) Acute course.
  - (2) Chronic course.
  - (3) End stage: Nephrotic contracted kidney without increased blood-pressure.
- B. Inflammatory diseases: NEPHRITIDES.
  - (1) Diffuse glomerulonephritis with obligatory increased blood-pressure, course in three stages:
 

<ol style="list-style-type: none"> <li>(a) Acute stage</li> <li>(b) Chronic stage without kidney insufficiency</li> <li>(c) End stage, with kidney insufficiency.</li> </ol>	}	All three stages may run a course <ol style="list-style-type: none"> <li>(a) Without edema.</li> <li>(b) With edema, i. e., with marked and diffuse degeneration of the epithelium.</li> </ol>
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  - (2) Focal nephritis, without increased blood pressure.
    - (a) Focal glomerulonephritis.
      1. Acute stage.
      2. Chronic stage.
    - (b) Septic interstitial nephritis.
    - (c) Embolic focal nephritis.
- C. Arteriosclerotic diseases: SCLEROSSES:
  - (1) Benign hypertension—pure sclerosis of the kidney vessels.
  - (2) Malignant hypertension—the combination form, genuine contracted kidney—sclerosis plus nephritis.



TABLE II.  
SALT CONTENTS OF FOODS. (Leva)

	NaCl percent.
Meats:	
Fresh	0.1-0.3
Dried	6-14.
Smoked	1-11
Canned	2-11
Sausage	2-6
Meat extracts	1-14
Broths	9-19
Fish:	
Fresh	0.05-0.3
Dried	1-3
Smoked, unsalted	0.3-0.5
Smoked, salted	10-20
Preserved in oil	1-5
Fowl:	0.1-0.8
Prepared soups	8-12
Eggs	0.1-0.3
Cavier	3-6
Cheese	1-10
Milk	0.16
Butter	1-3
Margarine	2.
Vegetables, canned	0.5-1.5
Vegetables, fresh	0.1-0.8
Fruit	0.01-0.2

TABLE III.  
DIET LIST FOR NEPHRITIS WITHOUT EDEMA AND NO INDICATION FOR PROTEIN RESTRICTION  
BEVERAGES

Cocoa—Hot, or cold, but not iced.

Coffee—One cup daily.

Tea—As desired.

Water—May be used in plain or carbonated, in quantities up to 1000 cc. daily.

One day each week drink up to 2500 cc. in 24 hrs.

Milk—Sweet—1500 cc. daily permitted.

Buttermilk—1000 cc. daily permitted, add 2 oz. of cream to each pint.

#### FRUITS

Apples (baked or sauce)

Lemons

Grapes

Figs

Pears

Grapefruit

Grapejuice

Prunes.

Oranges

Grapefruit juice

Strawberries

Pineapple

#### CEREALS

Rice

Oatmeal

Grits

May be served with cream or fruits if desired.

#### BREADS

Toast

Rye and Whole Wheat, stale

Zweibach

Corn bread, fresh and hot.

White

#### VEGETABLES.

Potatoes, baked, broiled or

mashed

Spinach

Peas

Lettuce

Cauliflower

Cabbage

Carrots

String beans

Brussel sprouts

#### MEATS

Baked, broiled, or roasted

Eggs—not more than two daily and not on days that meats are taken.

Fish—except sardine and mackerel.

#### FATS

Butter

Nuts—in quantities desired.

Olive oil

Almond oil

#### DESSERTS

Custards

Fruit jellies

Jello

Fruits—stewed or raw

Junket

#### ARTICLES PROHIBITED

Spices

Smoked meats

Pork

Peppers

Mushrooms

Game meats

Celery

Salads

Onions

Cucumbers

Meat broths

Fried foods

Asparagus

Tomatoes

Radishes

Sugar—as desired.

Salt—limited to amount used as flavoring for use of family and general preparation.

TABLE IV.  
O'HARE'S DIET SHEET

## Group I.

(Each full portion counts 1)

Breads	Full portion	Vegetables	Full portion
Bread (white)	1 average slice	Baked beans	1 tablespoonful
Bread (graham)	1 average slice	Lima beans	1½ tablespoonful
Unseeded biscuit	5 crackers	Potato, creamed	1 tablespoonful
Shredded wheat	1 biscuit	Potato, mashed	1½ tablespoonful
Cereals		Potato, boiled	1½ tablespoonful
Oatmeal	2 tablespoonfuls	Green peas	2 tablespoonfuls
Boiled rice	3 tablespoonfuls	Canned corn	2½ tablespoonfuls
Cornmeal mush	4 tablespoonfuls	Onion, boiled	3 tablespoonfuls
Cream of wheat	6 tablespoonfuls	Macaroni	4½ tablespoonfuls
Farina		Squash, boiled	5 tablespoonfuls

## Group II.

(Each full portion counts 2)

Dairy Products	Full portion	Meats	Full portions
Milk	1 glass	Chicken, roast	3"x3"x½"
Egg	1 egg	Lamb chop, broiled	2/3 chop
Eggs, scrambled	1½ tablespoonfuls	Lamb, roast	3"x2½"x¼"
Custard	3 tablespoonfuls	Beefsteak, broiled	2"x1"x1"
Fish			
Cod, boiled	1"x1"x1½"		
Haddock, boiled	1½"x1"x1"		
Oysters	7 oysters		

## Group III.

(No restrictions)

Vegetables	Fruits	Miscellaneous
Turnips	Watermelon	Sugar
Carrots	Plums	Syrup
Cabbage	Pears	Candy
String beans	Peaches	Honey
Cucumbers	Strawberries	Maple sugar
Cauliflower	Grapes	Butter
Celery	Apple sauce	Cornstarch
Tomatoes (fresh)	Grape fruit	Arrowroot
Tomatoes, (cooked)	Raspberries	Tapioca
Lettuce	Blue berries	Post Toasties
Asparagus	Muskmelon	Maple syrup
	Apples	Olive oil
	Pineapple	
	Prunes	
	Oranges	

TABLE V.

## AUTHOR'S MODIFICATION OF O'HARE'S DIET SHEET

- Any combination of foods may be selected; foods not listed must not be taken.
- In Groups 1, 2, 3 and 4 there is a restriction in total amount, the foods in these groups must be served in full or half portions; there is no restriction in group 5.
- Do not add salt or spices to the foods other than what is used in preparation.
- A full portion in group one counts one (one is equivalent to one gram of protein).
- A full portion in group two counts two (two is equivalent to two grams of protein).
- A full portion in group three counts four (four is equivalent to four grams of protein).
- A full portion in group four counts eight (eight is equivalent to eight grams of protein).
- Your total score for the day should be . . . . .
- Your total amount of fluid should be . . . . . pints.

## GROUP 1.

## VEGETABLES

Asparagus-(6); artichokes-(1); lettuce-(¼ head); olives, ripe-(6); radishes-(6); tomato-(1 medium size).

Beans, (green), beets, cabbage, cauliflower, cucumbers, eggplant, endive, leeks, marrow, mushrooms, sauer kraut, sorrel, spinach, swiss chard, water cress, rhubarb, carrots, turnip, peas (canned), okra, onions, parsnips, squash, pumpkin-(4 tablespoonfuls).

## FRUITS

Apple-(1); grapefruit-(½); lemon-(1); muskmelon-(½); orange-(1); peach-(1); grapes-(1 bunch); watermelon-(slice 1 inch thick); pineapple-(2 slices).

Currents, gooseberries, cranberries, blackberries, raspberries, strawberries-(4 tablespoonfuls).



## GROUP 2.

## VEGETABLES

Artichoke, fresh-(1); beans (baked), corn green (canned), lima beans, macaroni, potatoes, (white-sweet), rice, hominy-( 4 tablespoonsful).

## FRUITS

Apricots-(2); banana (1); pear-(1); plums-(2); huckleberries, cherries, blueberries - (4 table spoonsful).

## CEREALS

Oatmeal, corn mush, cream of wheat, Farina-(measure after it is cooked) - 4 tablespoonsful.

## GROUP 3.

## BREADS

White, rye, whole wheat, Graham (1 medium slice). Corn muffins-(1); cakes-(2); rolls- (1); biscuits-(2); waffles-(6); crackers-(6); Zweiback-(slices 3); cheese straws-(4).

## CHEEALS

Puffed rice, corn flakes, grape nuts-(4 tablespoonsful).

## GROUP 4

## DAIRY PRODUCTS

Milk, butter, skimmed, whole, cream-1 glass.

## CHEESE

Philadelphia cream, American cream, Rocquefort, limberger, California flat, Swiss, Neuchatel, Pineapple, pieces 2x1x1½ inches. Cottage-(3 tablespoonsful).

## SEAFOODS

Oysters-(7); sardines-(6); clams-(4); shrimp-(4); salmon, lobster-(2 tablespoonsful). Fish, fresh-(small portion); Frog legs-(2) broiled.

## FOWL

Chicken, capon, duck, turkey, goose, squab-(medium serving). Eggs-(2).

## MEATS

Lamb, steak, (broiled), beef, pork (fresh), veal-(small serving) piece-3x3x¼ inch.

## GROUP 5

## No restrictions

Sugar, syrups, candy, honey, butter, corn starch, olive oil, Wesson oil, nuts, peanut oil, Oleo Margarine, jello, preserves, jellies.

TABLE VI  
KARELL DIET

Milk - 200 c. c.  
4 times daily for seven days.

Analysis:

C. H.	—	P.	—	F.
40.5		27		27

Calories 472.

TABLE VII

## ROWNTREE MODIFICATION OF KARELL DIET

- 9 A. M.—200 c. c. of milk (1-3 pint).  
     1 shredded wheat biscuit.  
     1 egg, soft boiled or poached.  
     1 slice of bread, salt free.  
     1 butter ball, salt free.
- 1 P. M.—Soup (chicken or tomato), 200 c. c., no salt.  
     Lamb chop, 100 grams (.3 lb.), or chicken 150 grams (.4 lb.).  
     Mashed potatoes, 100 grams (.3 lb.)  
     1 soda cracker, salt free.
- 5 P. M.—Milk, 200 c. c.  
     1 egg, soft boiled or poached.  
     1 slice of bread, 40 grams, salt free.  
     Rice, or tapioca pudding, 100 grams (.3 lb.)
- 9 P. M.—Milk, 200 c. c.
- 1 A. M.—Milk, 200 c. c.
- 5 A. M.—Milk, 200 c. c.

TABLE VIII  
LOW CARBOHYDRATE, HIGH PROTEIN AND LOW FAT DIET  
(EPSTEIN).

Water	240 c. c.
Milk, skimmed	360 c. c.
Coffee	180 c. c.
Broth	220 c. c.
Egg white	8 eggs
Cracker	1
Veal Chop	1
Chicken	2 oz.
Vegetables (5%)	250 gms.
Vegetables (10%)	100 gms.
Orange	1

TABLE IX.  
FOODS CONTAINING HIGH OXALIC-ACID CONTENT. (ESBACH'S ANALYSIS)  
(RE-ARRANGED BY AUTHOR.)

In Each 1000 Grams of	Oxalic-Acid in grams	In Each 1000 Grams of	Oxalic-Acid in grams
Cocoa	4.5	Beans	0.3
Tea	3.7	Gooseberry	0.13
Sorrel	3.6	Plums	0.12
Pepper	3.2	Coffee	0.1
Spinach	3.2	Endives	0.1
Rhubarb	2.4	Strawberry	0.06
Figs	1.0	Tomato	0.05
Chocolate	0.9	Bread	0.04
Potato	0.4	Carrots	0.03
Beets	0.4	Celery	0.03

## BIBLIOGRAPHY

- Arnold, H. D.: Boston Med. and Surg. Jour., CLXI: 457, 1909. Med. Communication, Mass. Med. Soc., XXI: 631 1909. Tr. Am. Climat. Assn., Phil., XXV:128, 1909.
- Bogert, Underhill and Mendel: The Regulation of the Blood Volume after Injection of Saline Solutions. Studies of the Permeability of Cellular Membranes. Amer. Jour. Physiol., XLI: 189, 1916.
- Bookman, A. and Rosenthal, J.: The Clinical Value of Intravenous Injection of Congo Red in the Diagnosis of Amyloid Disease. Amer. Jour. Med. Sc., CLXXXIII: 396, (March) 1927.
- Brown, Geo. E. and Rountree, Leonard G.: Blood Volume in Edema of Glomerular Nephritis and Nephrosis. Arch. Int. Med., XLI:44, (January) 1928.
- Cohnheim: Allg. Path., II: 432, 1880. (Translated).
- Christian, H. S.: Nephritis. Oxford Medicine, III, Oxford University Press, London and New York, 1920.
- Epstein, A. A.: A Contribution to the Study of the Chemistry of Blood Serum. Jour. Exp. Med., XVI:719 1912. Ibid: Further studies on the Chemistry of Blood Serum. Jour. Exp. Med., XVII:444, 1913. Ibid: Studies on the Chemistry of Serous Effusions. Jour. Exp. Med. XX:334, 1914. Ibid: Edema in Chronic Nephritis. Amer. Jour. Med. Sc., CLIV:638, (November) 1917.
- Epstein, A. A. and Baehr, G.: Studies in Experimental Diabetes after Pancreatectomy. Jour. Biol. Chem., XXIV:1, 1916.
- Fischer, Martin H.: Edema. Wiley and Sons, New York, 1910.
- Fishberg, Arthur M.: The Arteriolar Lesions of Glomerulo-Nephritis. Arch. Int. Med., XL:80, (July) 1927. Ibid: Hypertension and Nephritis. Lea and Febiger, Philadelphia, 1930.
- Foster, N. B.: "Uremia." III. Non-protein nitrogen of the blood. Arch. Int. Med., XV: 356, 1915.
- Foster, N. B., and Davis, H. B.: The Effect of Water Intake on Nitrogen Retention in Nephritis. Amer. Jour. Med. Sc., CLI:49, 1916.
- Friedenwald, J. and Ruhrah, J.: Diet in Health and Disease. W. B. Saunders Co., Philadelphia, 1925.
- Hewlett, A. W.: Functional pathology of Internal Diseases. Monographic Medicine, Vol. I, D. Appleton & Co., New York and London, 1916.
- Howland, J. and Marriott, W. McK.: Observations on acid-base equilibrium in the body. Amer. Jour. Physiol., Leiter, Louis: Observations on the Relation of Urea XLII:587, 1916-17.
- to Uremia. Arch. of Int. Med., XXVIII:331, (September) 1921.
- Macallum: The text-book of Pathology, Second Edition, Philadelphia, 1921.
- Mosenthal, H. O.: Renal Function as measured by the Elimination of Fluids, Salt and Nitrogen, and the Specific Gravity of the Urine. Arch. Int. Med., XVI:733, 1915. Ibid: The Influence of Protein Food in Increased Blood Pressure. Amer. Jour. Med. Sc. CLX:808, (December) 1920. Ibid: Endocrinology and Metabolism. Vol. 1, D. Appleton & Co., New York, 1922.
- McElroy, J. B.: Nephroses. J. A. M. A. LXXXIX:940, (Nov. 12) 1927.
- Newburgh, L. H. and Squier, Theo. L.: Renal Irritation in Man from High Protein Diet. Arch. of Int. Med. XXVIII:1, (July) 1921.
- Newburgh, L. H. and Clarkson, Sarah: Production of Arteriosclerosis in Rabbits by Diets rich in Animal Proteins. J. A. M. A., LXXIX:1106, (September 30) 1922.
- Newburgh, L. H.: Production of Bright's Disease by Feeding High Protein Diet. Arch. int. Med., XXIV:359, (October) 1919.
- O'Hare, J. P.: A Nephritic Diet Sheet. Amer. Jour. Med. Sc. CLIX:883, 1920. Ibid.: The Renal Lesions of Nephrosis. Edit. J. A. M. A., CXXXIV:2066, (June 28) 1930. Ibid: Oxalic Acid in Vegetable greens, 2067.
- O'Hare, J. P. and Vickers, M. C.: Home Management of the Diet in Nephritis. J. A. M. A., LXXXI:1606, (Nov. 10) 1923. Ibid: Diet in Nephritis. Editorial J. A. M. A., CXXXIV:2066, (June 28) 1930.
- Rountree, L. G.: The Treatment of Nephritis. Practical Treatment. Vol. 4, W. B. Saunders Co., Philadelphia, 1917.
- Saleeby, E. R.: The Question of the Existence of Amyloid Casts. J. A. M. A., LXXXIV:344, 1925.
- Starling: Quoted from F. H. Scott, Jour. Physiol., L: 157, 1916.
- Vohland, F. and Fahr, T. H.: Die Brightsche Nierenkrankheit. Julius Springer, Berlin, 1914 (Translated).
- Walsh, E. F. and O'Hare, J. P.: A Nephritic Diet Sheet. Amer. Jour. Med. Sc. CLIX:883, (June) 1930.
- Wantanabe, C. K.: The Rate of Excretion of the Three Nitrogenous Waste Products, Uric Acid, Urea and Creatinin in Nephritis, as shown by comparative studies of the blood and urine. Amer. Jour. Med. Sc., CLIV:76, (July) 1917.
- Widal: Bull. et. men. Soc. med. d. hop. de Paris, 12, Juin, 1902. (Translated).
- Wolferth, C. C.: A Clinical Study of Chloride Excretory Function. Amer. Jour. Med. Sc., CLIV:84, (July) 1917.



PITFALLS IN THE USE OF IODINE IN  
DISEASES OF THE THYROID  
GLAND\*

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I am asked to present a practical paper on the above subject. In my effort at making this a practical paper I have chosen to leave off bookish references and to give an outline of my own opinions and practices which however, have been checked by recent personal correspondence against those of some of our outstanding men in goitre work. At the outset, and in a group, I wish to acknowledge especially interesting and much appreciated letters on this subject from Drs. Crile, Pemberton, Jackson and Hertzler. I believe a discussion of this subject now is well timed because the wide divergence of opinion among medical men is certainly creating confusion in the minds of students of medicine and of the laity. Varied or opposed teachings on this subject lead to harm and surely we can finally get together on the more essential points. Though much remains to be done in the final solution of the goitre problem the knowledge now available if solidly advanced by our profession can offer the people of Kentucky a fairly effective prevention of endemic goitre, a medical mortality in goitre generally at practically zero and a mortality in surgical goitre of one per cent or less. Such results in combatting the goitre scourge represents a really amazing advance in the past few years and if they could be generally achieved, instead of in the highly organized medical centers only as at present, the result would be of great saving of human life and an economical gain. To bring this gain to the greatest possible number of real and potential sufferers is an important part in this brilliant chapter of medical history. Recent advances making such results possible may be chronicled as: 1. Earlier diagnosis, 2. Recognition of the clinical types of goitre, 3. Introduction of iodine as a prophylactic and pre-operative treatment and 4. Certain refinements in surgical technic. I have stressed the importance of early diagnosis in another paper before this Society, but feel quite sure that the outstanding contribution to surgery in the past decade has been the scientific reintroduction of iodine in the treatment of goitre by Plummer in 1922.

Our bodies are bio-chemical units of wonderful complexity. Gross amounts of certain raw materials and very minute amounts of others are required for the many and often little understood reactions necessary for the

maintenance of the human body at normal. No doubt we surfeit often, on certain elements, and on others starve. Disease conditions vary the chemical requirements and the ability of the different systems to utilize the materials furnished. Knowledge of the chemistry of our bodies has scarcely been touched. Yet certain things are known definitely. Certain it is that iodine in minute amounts is vitally necessary to our well being. It has been remarked that a few grains of iodine may mean the difference between an idiot and a brilliant man. Iodine acting through the thyroid gland is our metabolic pace maker. It governs the rate of that wonderful process of change of food to flesh and flesh to waste—a process our wisest physiologists do not profess fully to understand. The earth's supply of iodine is poorly distributed. One common source of iodine is sea water. Certain sea plants concentrate it within themselves and furnish a supply of the drug. It is easily washed out of the soil and back to the sea hence mountainous areas and lands distant from the ocean are apt to be poorly supplied with this element.

The early Greeks used the ash of burned sea sponges in the treatment of goitre. Marine states that iodine has been used as a prophylactic for over a hundred years and as a treatment actually about ten years. Iodine was accidentally used in a goitre case, with favorable effect, and reported in 1863 by Trousseau. For many years the use of iodine in goitre was irregular—praised and condemned in turn by medical men and exploited by patent-medicine houses. In my student days, some eighteen years ago, certain surgeons rather violently opposed its use in toxic goitre even refusing to allow preparation of the operative field with it on the assumption that even small amounts increased the toxemia. In those days goitre was undoubtedly recognized late. Knowledge of the condition was lacking and the treatment varied greatly. One essayist of that time listed twenty remedies he had found helpful in goitre cases. Marine and Kimball have shown that endemic goitre can be safely prevented by the use of small quantities of iodine in children. Then Plummer in 1922 presented proof of the remarkable benefit of large doses of iodine in the preparation of exophthalmic goitre cases for operation. Since his work in 1922 the use of iodine in diseases of the thyroid gland has become fairly standardized though our experts disagree on some important points and not a few of the profession have apparently misunderstood the exact import of the work done by Plummer and Boothby. Unfortunately, it frequently happens that when a medical discovery is made it is soon overdone

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in certain quarters. Enthusiasm in the use of iodine has undoubtedly led to the production of harm in certain instances. I shall point these instances out as I have observed them. To accomplish this it seems not amiss to record, first, the well recognized uses of iodine and assume other uses of iodine to be, as yet, questionable or even harmful; then, secondly, to stress the major pitfalls in its use. Such handling of so controversial a subject leaves much to be said, of course, but this question has become, for the general man, unduly involved and is evidently misunderstood by the public and a percentage of the profession as well. What we need here, it seems to me, is very plain statement of prevailing opinion and simple rules for effective treatment of cases. I give my opinion and rules of practice briefly and without involved argument here for what they are worth. Any intelligent handling of goitre cases or goitre discussions presupposes a definite clinical classification of diseases of the gland. I accept that of Plummer as best and most helpful, to the clinician, of any advanced to date. Iodine therapy is concerned mainly with two of the eight or nine disease groups as given by him i. e. the endemic and the exophthalmic goitre groups.

1. Endemic Goitre. The work of Marine and Kimball has proven beyond reasonable doubt that iodine plays an important part in the prevention of this type of goitre. Iodine deficiency is the immediate cause; the ultimate cause is not known. Just why, in a given district, with the same food and water supply certain persons fail to get enough iodine while others do; or why certain persons need an increased amount all the time or at certain times; or why certain thyroids fail to utilize a sufficient amount from a supply ordinarily adequate are not known, though emotional stress, chronic infections, fevers, etc. seem to have a marked influence. The big problem of prophylaxis comes up here. Endemic goitre can be prevented by the proper use of iodine. Prophylaxis is being tried on a large scale in some parts of the country—even by states. The accepted methods of community administration of iodine is by use of iodized salt or the use of some preparation of iodine in drinking water. Several State Health Boards are enforcing definite programs for goitre prevention. To give entire populations iodine and in doses varying with ones appetite for salt when perhaps only a small percentage need the added amount seems to me unscientific, at least. Drs. Crile, Hartstock, Jackson and others believe such use leads to the production of hyperthyroidism in certain types of cases, notably in old adenomas, and they decry this practice. Certainly the adminis-

tration of iodine for prophylaxis or cure is safer under the personal direction of the physician. Yet my personal experience has failed to convince me that the very minute doses advised for prevention have caused any degree of harm. Pemberton's opinion is practically identical. Whole populations will not take prophylactic treatment from our physicians hence we accept iodized salt in lieu of a better plan and particularly urge that iodine be given school children as here there is no question of harm. Goitrous pregnant mothers too should be given protection for their offspring.

a. Colloid Goitre already established yields to treatment with iodine as a rule. However, too much or too little may be given and a physician should order the drug. Rarely does colloid goitre become a surgical problem. It is to be kept in mind that colloid enlargements may effectively conceal small adenoma and these cases are to be watched for.

b. Adenomatous Goitre without Hyperthyroidism. Iodine is of value in prophylaxis, as already mentioned, but is of no value as a curative agent. The minute prophylactic doses probably cause no harm though opinion is divided on this point. Patients with simple adenoma should take iodine if at all, only on advice and under the constant supervision of their physicians. My own rule is that iodine has no place in the treatment of this type of goitre.

c. Adenoma with Hyperthyroidism. Iodine is to be used here only in preparation of these cases for operation. Its value even here is disputed. In my own experience this type of toxic goitre responds favorably to iodine therapy at least to an extent warranting its use pre- and post-operatively as is done in exophthalmic goitre. Occasionally pronounced benefits are obtained but in these cases I am convinced that the glands are of diffuse hyperplasia. I have observed no actually unfavorable effect of the drug in these cases. We do not, however, use extraordinary doses nor continue the treatment long in any case. I am not prepared to say that harm can not be done by use of the drug here. We plan, as in all toxic goitre cases, to operate at the time of maximal improvement as nearly as this time can be judged. My rule is to use iodine in toxic adenoma regularly pre- and post-operatively as in exophthalmic goitre and with the same restrictions.

2. Exophthalmic Goitre. The cause of exophthalmic Goitre is unknown but it does occur with greater frequency in endemic goitre areas hence prevention of endemic goitre by the use of iodine may tend to lessen the number of exophthalmics. Iodine in



the large doses advocated by Plummer usually has a prompt and powerful influence. All the distressing symptoms including crises are, as a rule, quickly alleviated and often to such a degree as to give false hope of ultimate cure of the disease. We have not observed an instance of cure of any case of toxic goitre by the use of iodine. Control, not cure, may be expected. If vomiting renders oral administration uncertain or futile large doses may be given per rectum until the symptoms are under control. Its preoperative use in these cases has proven of immense value. Since this usage has been generally adopted the following benefits are regularly attributed to it: 1. Litigations and staged operations practically eliminated. 2. Reduction of mortality. 3. Reduction of morbidity. 4. Diminution of recurrences. 5. Diminution of difficulties at time of operation. 6. Saving of time and expense to patient. It should be used preoperatively in such dosage (usually not more than 10 m. t. i. d.) and for such length of time (usually not more than 10 to 14 days) as improvement continues; in other words, until the case judged by the clinical picture and in the light of experience has shown maximal improvement. As to this time of maximal improvement we cannot be absolutely exact and if individual cases are not observed regularly and keenly the treatment may be continued in some cases until they have gone over this maximal point of improvement. I feel convinced that the greatest and most beneficial effect of iodine in these cases is obtained on the first attempt to control the toxemia with it. When such cases have had long periods of iodine treatment and then come for operation the primary response to iodine can scarcely be obtained again and much larger doses are apt to be required. In other words, iodine has no place in the treatment of exophthalmic goitre except in association with surgery unless in emergency or when for some reason surgery is not available or must be delayed in which latter cases it should be well understood that in all probability the optimum time for surgical relief is being allowed to pass. Immediately after operation the use of iodine is important, and again it is of value in some cases which after operation show a residual hyperthyroidism for some weeks. In case of actual recurrence of hyperthyroidism with enlargement of remaining portions of the gland, re-operation is indicated and the use of iodine should not be too long continued before the decision to re-operate is reached. My own rule in exophthalmic cases is to use iodine immediately before operation, the dose and period of administration depending on the improvement shown; to continue the use of fairly large

doses during the immediate post operative period; to use small doses for several weeks or even months in cases showing residual hyperthyroidism.

Pitfalls in the Use of Iodine Summarized:

1. Failure to make a proper diagnosis. Iodine preparations given for other reasons may influence the gland in an unobserved and harmful way.

2. Failure to make a proper clinical classification and indiscriminate prescribing of iodine in thyroid enlargement.

3. The questionable use of iodine, even in minute doses in simple adenoma in adults. Men of great experience believe that certain susceptible persons with simple adenoma react unfavorably to even small doses of iodine with the production of hyperthyroidism (Crile, Hartstock, Jackson and others). One of these men (Jackson) declares that use of iodine here has resulted in a number of cases of hyperthyroidism distinctly differing from toxic adenoma as ordinarily observed and which he designates cases of "Iodine Hyperthyroidism." I have personally not been able to observe this condition but include it because of the weight of authority for such statements.

4. The marked improvement in exophthalmic goitre with the use of large doses of iodine is frequently misinterpreted, a false sense of security is attained or even a cure hoped for and surgery delayed beyond the optimum time. This probably constitutes the greatest pitfall in the use of iodine in diseases of the thyroid gland. The two-product theory of the function of the thyroid gland in exophthalmic goitre is probably correct. Iodine apparently controls the effects of one of these products only. Certain deleterious changes apparently go on in spite of the effect of iodine therapy and its long continued usage with delayed operation shows an unnecessarily high mortality whether from the effects of the iodine or simply the delay. The iodine may not be harmful but the delay certainly is. One operator whose mortality has shown an increase in the past few years finds the increase solely in these delayed cases.

5. Commercial Exploitation. The taking of patent preparations containing iodine in unknown amounts and as the layman pleases needs to be mentioned only to be condemned.

#### DISCUSSION

Irvin Abell, Louisville: Dr. Hume has given us a very practical consideration of the employment of iodine in its application to the solution of the goiter problem. With the recognition that goiter was in the main an iodine deficiency, there has been a rather wide-spread use of the drug, both in the prevention and in the treatment of goiter. With this has come

an apprehension in quite a number of quarters that undue harm might be occasioned by its use. As a means of prevention of endemic goiter it has been used in two ways, one mentioned by the essayist, that of iodized salt, and another, that of administering some of the salts of iodine, usually sodium iodine, in doses of three grains daily for a period of ten days twice a year at intervals of six months.

In an effort to determine if the use of iodized salt could be an etiologic factor in the production of hyperthyroidism, a survey was made in Michigan in one of the goitrous districts in 1928. All patients observed were adults, some of whom already had adenomatous goiters. Any patient presenting hyperthyroid symptoms was excluded. Of the 655 patients observed, 88 per cent had been taking iodized salt for four years or longer, and 12 per cent had been taking it for at least one year. Of the 655 patients, 27, or 4.1 per cent, showed some symptoms of hyperthyroidism. Of 419 patients similarly selected from the same region and used as controls who did not take iodized salt, 233, or 55.5 per cent, did show some symptoms of hyperthyroidism.

This would seem to indicate pretty clearly that the use of iodized salt is not only safe, but that it distinctly tends to inhibit the development of hyperthyroidism rather than to incite it.

The method of administering sodium iodine twice daily was tried out in the Akron schools where some 3000 girl pupils were given the 30 grains of iodine of soda in the spring and in the fall and kept under observation for a period of three years. With the exception of minor iodine rashes or susceptibility symptoms, none of them showed any deleterious effects, and only two in the entire group had an enlargement of the thyroid gland.

Of 2,305 girls in the same school kept under observation who took no iodized salt, 27 per cent showed some enlargement of the thyroid.

It is to be assumed, of course, that the majority of these 27 per cent were of, what we term, the adolescent type. But surely both series would prove that when iodine is administered in small amounts, sufficient, for instance, to meet the physiologic demands of the gland, it is a safe thing to do and certainly does inhibit the development of endemic goiter and, as well, the development of hyperthyroidism.

Dr. Hume has also given us, I think, a quite clear limitation of the employment of iodine in the treatment of goiter. Certain types of goiters that he has mentioned in his classification are very definitely benefited by it, and in some others it is distinctly contraindicated. As far as my observation goes, it is the abuse of the drug rather than the employment of it that constitutes the danger.

In, for instance, the enlargements that are noted during adolescence, during the menopause, and during pregnancy, minimal doses of iodine, with the patient under constant observation, can do no harm, whereas intensive treatment or the administration of large doses of iodine for a prolonged period undoubtedly in many instances tend to incite hyperthyroidism.

As he stated, the simple adenomata present the same danger. Breuer, Swiss writer, has referred to the type of hyperthyroidism occasioned by such treatment in such conditions of the thyroid as an Iodine-Basedow. The administration should always be under the personal observation of the physician, preferably should be intermittent, the dosage should be moderate, and in the event of any acceleration of pulse or increase in nervousness, certainly the administration of the drug should be stopped.

I do not believe with Dr. Hume that iodine has no place at all in the medical management of hyperthyroidism. In the milder type of cases, those running, say, a basal rate of a plus 15 to a plus 20, very frequently minimal doses of iodine combined with rest and with sedatives, will permit an appreciable number of these patients to regain their normal balance without the necessity of a resection. In the medical treatment of the thyro-cardiacs iodine has a very definite place. This is also true if the goitre patient is also the subject of obesity, diabetes or nephritis since these require very careful watching. It is a good rule in practice never to prescribe iodine or its salts for the goitre patient with the patient believing that the drug may be taken indefinitely. So long as the iodine is taken supervision must be retained if both its unpleasant and deleterious effects are to be avoided. There can be no disagreement with the position of the essayist in regard to the employment of iodine in the treatment of goitre preparatory to operation.

**Wallace Frank, Louisville:** There are one or two points that the essayist, Dr. Hume, has brought out that I would like to emphasize. There is no question, as he first stated, of the value of iodine in the prevention of endemic goiter. We believe that the treatment here should absolutely be under the control either of a state committee that has control of the goiter situation, or that it should be under the control of the physician taking care of that case.

The use of iodine as treatment for adenoma we don't believe in. It has been our experience that a number of simple adenomas so treated have under relatively careless instructions to the patient developed symptoms of hyperthyroidism. I think that these are the cases, as mentioned by Dr. Abell, where the iodine has been given in excessive amounts and stimulated non-toxic adenomas to develop toxic symptoms.

As a pre-operative measure, we believe in iodine in all types of goiter. Of course, there



is no necessity of operating on a colloid goiter unless you are doing it for cosmetic purposes, but in cases of toxic adenoma and in cases of so-called exophthalmic goiter, we believe that iodine should be given as a pre-operative treatment. It is common knowledge that in a great many cases of apparently toxic adenomas, when they are examined pathologically one finds evidences in the microscope of the picture seen in exophthalmic goiter, and consequently iodine in these cases prevents these so-called post-operative reactions which are due to excessive stimulation and the lack of iodine preparation.

As to whether or not exophthalmic goiter is due to iodine deficiency, that has not so far been settled. It is our personal belief that while iodine improves them, this is apparently a nervous disease due to emotional upsets or excessive nervous stimulation of some kind rather than to any disease in the thyroid itself.

So far as the administration of iodine in these cases goes, there is certainly 20 per cent in whom there is no response to iodine therapy. These cases must be handled differently. There are other cases where the iodine has been continued in the matter of preparation over too long a time, and the iodine effect has commenced to be lost. One should be careful here, because once lost, as brought out by the essayist, patients do not respond to the second administration of iodine nearly so well as to the first.

As to the matter of treatment or the size dose given, I would mention a case that we now have at the hospital. The day before the individual came in he was receiving 55 drops of Lugol's solution three times a day, of course just five or six times more than the man needed. He was a desperate case. How the individual stood 55 drops of Lugol's three times a day without showing symptoms of iodism, I don't know. Apparently it had not hurt him, and yet he had passed his crest some two or three weeks and had started to lose weight even though continuing treatment. I simply mention that case to show that such doses are not necessary and not infrequently one finds that a better response is to be obtained under small doses than under large doses in a short time.

**Walter I. Hume**, (in closing): Dr. Abell points out that some mild cases apparently recover under Iodine therapy. I might say that in many cases of mild degrees of hyperthyroidism, we have tried iodine too and most have finally progressed in spite of it. In my paper I perhaps should have said in the "well established" cases of hyperthyroidism thus leaving out very mild or doubtful cases. It should read that in the well established cases of hyperthyroidism iodine has no place except in association with surgery. That was my intention.

I thank the Doctors for their discussion.

## PITFALLS IN THERAPY IN THE USE OF ARSPHENAMINES\*

JETHRA HANCOCK, M. D.

Louisville.

In contributing to a symposium on the Pitfalls in Therapy, with special consideration to the use of Arspenamines in the treatment of syphilis, the possible errors are so many that one can do little more than enumerate them in the time given for this discussion. It would, therefore, seem more helpful if we discuss the more usual errors that are constantly observed in the use of these agents in the hands of the medical profession at large, even though they seem to be elementary, rather than discuss the more technical and less frequent errors.

The lack of physical facilities for the proper administration of arsenicals constitutes one of the most common pitfalls in the therapeutic use of these agents. Bad and insufficient light, coupled with inadequate facilities for giving the clinician advantage point in skillful manipulation in the administration of arsenicals is fraught with so many evil results, both in omission and commission, as to give it an outstanding place in the consideration of the proper therapeutic benefits to be derived from these agents. The room should be well lighted, the surroundings should be surgically clean, the attending nurse alert, creating an atmosphere of composure both for the clinician and the patient if the best results are to be obtained. Needles and syringes should be well chosen and of good quality, well sterilized, and in good working condition. Probably a ten c. c. syringe and twenty by one gauge needle is the size of choice. The veins for administration are deliberately chosen and carefully exposed by proper tourniquet, thus avoiding many of the unnecessary blunders of infiltrating the tissues with its attendant consequences. Just in this connection the operator should always have at hand a suitable supply of Sodium Thiosulphate and if, by chance, there is some infiltration, it should be quickly put in solution and with syringe removed leaving the needle in situ, by attaching another syringe with the needle thus in position inject the infiltrated tissues with this agent, thus avoiding evil consequences.

Determining the arspenamine to use is of prime importance. Probably the old arspenamine is somewhat more efficacious in its therapeutic effect than the other arspenamines, however, the small difference in therapeutic efficiency is often overbal-

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anced in favor of the nearsphenamines and sulpharsphenamines in consequence of the ease of preparation of the latter agent. One of the commonest errors in the administration of arsphenamine, or 606, is a faulty method of neutralization. However simple and commonplace this may seem in the mind of the well skilled syphilologist it is quite often a bugbear in the mind of many otherwise well informed physicians who treat syphilis from the viewpoint of the general practitioner rather than that of the specialist. The only facilities necessary for the proper neutralization of arsphenamine, or 606, is a fresh solution of sodium hydroxid of known strength, say ten per cent solution, with a medicine dropper adding the sodium hydroxid after the arsphenamine has been put in the solution, a few drops at a time until the solution has become flocculent then drop by drop until the flocculency is exactly clear, no more. If this procedure is followed there will be neither over nor under neutralization, thus bringing into proper general use one of our best agents for the treatment of syphilis in the hands of the occasional operator, however, the difference in the therapeutic efficacy of arsphenamine, or 606, and the neoarsphenamines and sulpharsphenamines is not believed to be sufficient to urge its choice over the latter named agents, and is only mentioned because of the importance of the difference in the suitable preparation of the several agents. It is believed that many of the disastrous results in the use of arsphenamine, or 606, is traceable to its improper neutralization.

It might be added just here that the solution of old arsphenamine, or 606, should be administered at body temperature or slightly above, while that of neoarsphenamines should be administered in solution at normal room temperature or very little above.

A common error is agitating too much the neoarsphenamine in bringing it into solution. This agent oxidizes very rapidly and many of the reactions that are reported are clearly chargeable to the use of too warm water and too much agitation in its preparation.

Another common error often made is the use of neoarsphenamine intramuscularly in concentrated solution because of confusion in the minds of the inexperienced with the use of the sulpharsphenamine for this purpose. The sulpharsphenamines may be used with impunity intramuscularly or subcutaneously in concentrated solution, and it often facilitates the proper treatment of some cases of syphilis where the veins are inaccessible or where the operator is unskilled in intravenous medication. Moreover, there is thought by many syphilologists to be very considerable advantage in this mode of administration because of the somewhat slower

absorption through the tissues of this agent thus administered.

While the above considerations may seem inconsequential because of their elementary nature, it is believed they should be given first importance as they are fundamental in the prevention of pitfalls in therapy in the use of arsphenamines.

Something might be said in condemnation of the promiscuous administration of the arsphenamines, or, using common parlance, the use of so many shots of arsphenamine with little consideration of the general condition of the patient; little or no reckoning with the intercurrent conditions that the patient may be suffering with; just blindly giving so many shots of one of the arsenicals because the Wassermann is two, three, or four plus, and no other consideration being given to the patient. Most of the time no appraisalment is made of the kidney functions, cardiovascular system, eye ground, or other conditions that might be so apparent as to contraindicate any heroic attempt to influence the serological findings. While we recognize that facilities are often so inadequate that we must subordinate the ideal to the practical, yet it seems it might be reasonable for the medical profession to insist that due consideration be given to this important procedure rather than let it degenerate into a blind routine with its attending disastrous consequences to many helpless and underprivileged persons.

From our knowledge of the spirocheticidal action of arsenicals it would seem that the rational therapy would be to give the patient as large doses as possible in acute secondary syphilis. It is just here that an error is often made that causes the patient much discomfort and sometimes systemic shock that is very distressing. This condition is of therapeutic importance and is known in general literature as Herxheimer's reaction. Stokes refers to it over and over again as therapeutic shock. This condition is most likely brought about by the too sudden destruction of large numbers of organisms which are absorbed too rapidly, giving very much the same symptoms of too large doses of bacteria vaccine. Possibly it should always be borne in mind, and it is regarded as wise in all cases of acute secondary syphilis, give smaller doses of arsenicals at the first visit, probably 0.3 gram to 0.45 gram. In this manner we avoid this unpleasant reaction. Just in this relation it is a mooted question and one worthy of much scientific consideration, as to whether it would be better to give smaller doses of arsenicals at the first some considerable period of time, thus giving the patient an opportunity to develop his own immunizing bodies rather than overwhelm him



with large doses of this spirocheticidal agent and thus deprive him of the development of natural resistance to the infecting organisms.

It is just at this point we should give consideration to the multiple therapeutic attack. It is generally accepted that the arsenicals kill the spirocheta *in vitro*, by direct action, while on the other hand the bismuth and mercury kill the bacteria, *in vivo*, or by indirect action; thus it often occurs that one of the chief pitfalls is lack of harmonizing or correlating the multiple therapeutic attack so as to give the patient the best chance to develop and maintain his own immunizing bodies, and at the same time to get the best results from the direct spirocheticidal effect of the arsenicals. This is a very important therapeutical problem and the management of every acute case of syphilis presenting itself manifesting secondary syphilis should be well studied and a suitably directed treatment of arsenicals combined with mercury and bismuth instituted, thereby giving the patient a chance of being sterilized of infection without the complication of the organism becoming arsenic fast, as so often occurs. Here again the logic of smaller doses of the arsenicals squares itself with the rational or more moderate doses of these therapeutic agents, say 0.3 gram of the arsphenamine and 0.45 gram of the neoarsphenamine.

#### MANAGEMENT OF LATENT SYPHILIS WITHOUT CLINICAL MANIFESTATIONS AND WITH POSITIVE WASSERMANN

This type of syphilis taxes the judgment of the physician as much as any that comes under his care. There are so many factors that may lead to error in the management of these cases that he is often in doubt as to the proper manner of launching his attack. He must consider whether the patient will be faithful to his treatment or not, and again he must reckon with invisible lesions that cannot be demonstrated. If it is believed that the patient is suffering from no lesions, either visible or invisible, and is otherwise in good physical condition the point of wisdom usually would be to use the arsenicals very sparingly, if at all, thus avoiding breaking down immunity he has built up over a period of years. This class of cases responds clinically to the therapeutic effect of bismuth and mercury. Indeed, it is doubtful if one should be so optimistic as to hope to achieve more than a clinical cure for this class of patients; the zeal to effect a serological cure or render the patient's Wassermann negative is a hope often not attained.

#### CARDIOVASCULAR SYPHILIS

The management of cardiovascular syphilis should be thought of almost separate and apart in regard to the therapeutic agents to

be used and their manner of administration. Nothing could be more pernicious than the indiscriminate use of arsphenamines in cardiovascular syphilis, yet there is a place in the treatment of these cases for these agents. Paradoxical as it may seem there is grave danger of killing the patient by too rapidly healing the lesions. If gummatous deposits are broken down too rapidly by the administration of arsenicals before proper time is given for the infiltration to be replaced by scar tissue disastrous results are almost sure to follow. This class of cases should be approached by mercurial inunctions over long periods, later followed by intramuscular bismuth, and as the case progresses and physical symptoms warrant the use of arsenicals may be instituted but with great caution. What is more, every case of long standing syphilis is potentially a cardiovascular case whether it shows physical signs or not. Certainly no case of syphilis that has been standing without treatment over a period of years should be treated with arsenicals until a very careful appraisalment of the physical signs by all scientific means at the disposal of the clinician are used in ascertaining if there are signs of cardiovascular involvement. It often happens that the patient is feeling quite well, that he has suddenly been apprised of the fact that he has a positive Wassermann and presents himself to the physician of his choice and is at once put upon active arsenical treatment, soon to go to pieces with cardiovascular decompensation.

Another condition that taxes the judgment of the trained syphilologist is cardiovascular renal cases. He must first ascertain if the underlying causative factor is syphilis. If it is definitely decided that such is the case he must of necessity be divided in his opinion whether it would be wiser to institute mild administration of mercurial inunction or bismuth by intramuscular administration. Knowing as he must, that the kidneys must bear the burden of any mercurial medication yet he appreciates the fact that if he uses the arsenicals that the burden will be far less on the kidneys, but still has the danger of too rapidly absorbing the gummatous deposits of infiltration that constitute the only thing that is sustaining the cardiovascular system. In most instances it is probably more wise if treatment must be instituted to use mild and well ordered treatment of some of the arsenicals. In none of these cases should the clinician's zeal be stimulated with desire either for clinical or serological cure, the only hope he can entertain with any practical possibility of attainment being to make the patient more comfortable and restoring or sustaining him to some degree of earning power.

### HEPATITIS

Syphilis of the liver is another difficult condition to manage. The clinician is often in doubt as to whether the clinical symptoms present are due to syphilitic infection or whether they are coincident in their occurrence. Where the hepatic symptoms of biliary disturbance is timed coincident with the appearance of secondary syphilis and there is no history of previous biliary disturbance, there is good reason to believe that the acute syphilitic infection is the underlying causative factor in such hepatic disturbance. Here again the judgment of the clinician is taxed as to the best method of procedure. Certainly he recognizes that arsenics are excreted very largely through the liver. In the management of these cases it would seem good judgment to proceed very slowly and cautiously with any form of treatment; probably bismuth intramuscularly would be the remedial agent of choice until the hepatic symptoms are cleared up. In the event there is no improvement and he still believes that syphilis is the underlying factor in the biliary or hepatic disturbance he may institute mild doses of the arsenicals with very great caution, feeling his way by watching the patient carefully until he is well established in his antisymphilitic treatment.

### ARSENICAL DERMATITIS

Probably one of the most distressing conditions complicating the treatment of syphilis is arsenical dermatitis. This condition will occasionally arise in spite of all the skill and forethought the syphilologist can give, yet by very careful precaution and constantly being on the alert for its first manifestations, this complication may often be anticipated and avoided, yet at the same time continue the antisymphilitic treatment by arsenicals. Every patient under the care of the physician who is given any of the arsenicals should have very careful examination of the skin to ascertain if there are any dermal lesions. If the condition of exfoliated dermatitis is found to exist before treatment begins there is good reason to believe that the administration of the arsenicals will be attended by additional complication of arsenical dermatitis. In such cases it would be wise to avoid the use of arsenicals and proceed with the treatment of other remedial agents. In the event it is determined to use arsenicals the possibility of arsenical dermatitis will be much lessened by administration of 0.6 to 0.8 gram sodium thiosulphate at two or three day intervals alternating the period with the administration of the arsenicals. Where there are definite symptoms of arsenical dermatitis during the course of treatment the arsenicals should be withdrawn a few days and 0.6 to 0.8 gram of sodium thiosulphate should be adminis-

tered every second day until the symptoms are cleared up, at which time the administration of the arsenicals can be proceeded with, yet with caution, giving doses of the sodium thiosulphate every few days. Many of such cases may be successfully carried on with full treatment by instituting this method.

Apropos the subject, it might be suggested that arsenical dermatitis offers one of the largest fields of malpractice law suits that the physician has confronting him. He should be on the alert to protect himself against such eventuality by advising his patient in advance that such conditions do occur and can not be chargeable to any neglect or lack of skill on the part of the physician. Moreover, owing to the frequency of law suits arising from this unavoidable occurrence it behooves every physician to be ready to make the facts known that it is an unavoidable complication and often happens in the hands of the most highly skilled, and always be ready to discourage those contemplating such litigation.

While the foregoing, by no means, touches all of the possible errors in the administration of arsenicals, yet I have tried to point out as best I could in this brief manner some of the difficulties within my own observation and experience.

### DISCUSSION

**Winston U. Rutledge, Louisville:** Dr. Hancock was kind enough to ask me to say a few words about his paper which has just been read. I agree most heartily with everything he has said. Also, while listening to the reading of it, quite a number of questions came up which seemed to me to offer large pitfalls in the treatment of most syphilitic cases. In the first place, even before we start considering the arsenicals to use and how to use them and the amount to use, it seems to me the first thing to decide in the case of most patients who come to us, particularly with early syphilis, is whether the lesions they present are syphilitic.

I have seen in the past, in the Vanderbilt Clinic in New York, so many cases that came in with a history of having been treated by outside physicians for syphilis and having received only a few doses of arsphenamine or the mercurials, and when they came to us they had no sign of syphilis and the Wassermann was negative and we had to assume that they were syphilitic and treat them as such. On the other hand, I have seen a number of cases who came to the clinic with penile lesions, which were considered by outside physicians to be primary lesions of syphilis, and some of them appeared to be typical Hunterian chancres, but on repeated dark-field examination we were unable to demonstrate the spirochete, and subsequent Wassermann examinations were likewise neg-



ative. They also never developed a secondary eruption, so that we had to conclude they were not syphilitic.

Also, I have seen cases that appeared to have typical lesions of herpes proenitalis, but on dark-field examination they yielded an abundant quantity of spirochetes. That seems to be the most important thing that we should always consider in approaching a questionable syphilitic case, whether it is syphilitic or not.

Even in those cases where it is impossible to do a dark-field examination or a Wassermann test, it seems to me that it is well worth while waiting to see whether that patient develops subsequent secondary eruption which will confirm the evidence that it is syphilis. That seems to be in the opinion of many syphilologists much wiser than to go ahead with prophylactic or curative treatment before the actual demonstration of syphilis has been proven.

After proving that the patient has syphilis, the next thing, it seems to me, is to do a thorough physical examination, as Dr. Hancock stated in his paper. By that we mean as thorough a physical examination as is done by any internist, and not as often done by syphilologists. We should examine carefully the central nervous system, the gastro-intestinal tract, and the cardiovascular system, etc., because, as Stokes remarked in his book on the treatment of syphilis, failure to observe the sluggish pupil or to learn of a buzzing ear may result in a few hours after treatment in convulsions or death, or you may have only an anuric patient or one who has paraplegia. After you have made the diagnosis, the next thing is to do a thorough physical examination on your patient. Having done this, and having determined what type of treatment to use, the next thing is to continue treatment over an adequate period of time. I have seen so many cases that came into the clinic with a history of having had two or three injections of salvarsan and half a dozen injections of mercury. These patients have come in with a history that the doctor said they were cured simply because their Wassermann reaction was negative and six months later they would come back with a late secondary eruption or even in a few cases with definite evidence of central nervous system involvement.

The practice that I was taught and that was followed in the Vanderbilt Clinic and is followed in the City Hospital in Louisville is that these patients should be given at least twenty to thirty, more properly thirty, injections of salvarsan, and thirty to forty or fifty, even, injections of mercury, with very little rest period for the first year, and if that is done in the early cases you can usually feel that your patient will not return with a late manifestation of syphilis later on.

As to the question of the amount of salvarsan to give, recently, the opinion has been that

smaller doses of salvarsan do better than larger doses, because it appears that the combination of the bodily reaction plus the arsenical is more effective than simply the arsenical alone. An illustrative example of this is that two years ago while in the City Hospital in New York, we attempted to give very large doses of salvarsan to a dozen selected cases of secondaries; they were given three-tenths of a gram of neosalvarsan three times a day for periods varying between ten and thirty days. At the beginning they all had positive Wassermans and most of them had secondary eruptions. A Wassermann test was done each time the administration of salvarsan was made, and at the end of periods varying between ten and thirty days, most of those patients still had their secondary eruptions, and in most cases the Wassermann was still 4 plus.

**Jethra Hancock**, (in closing): I appreciate Dr. Rutledge's discussion. In certain of the points in his discussion he referred to early syphilis. As I see it, the pitfalls of syphilis are more particularly in late syphilis. Of all the conditions that the medical man is confronted with I think late syphilis is the one that lends itself least to routine treatment. Yet we are supposed to lay down a rule-of-thumb for the treatment of syphilis in all of its phases.

As indicated in the paper, nothing probably could be more pernicious. Often times more harm would be done by routine treatment of late syphilis, and certainly I would much prefer the old methods of inunctions and mixed treatment by mouth than the modern treatment by arsenicals if routine treatments are to be relied on at all. I feel that experience has borne out this observation.

We can hardly mention syphilis without first considering what type of syphilis we are going to deal with. It does not lend itself to discussion at all until after we have determined the type of syphilis. If it is a very early primary syphilis, it is quite a different condition and we may make that routine. If it is late primary syphilis with secondary manifestations that, too, may be made routine with some hope of success. But in the very late secondary syphilis with its scores of manifestations, it would be impossible, from my viewpoint, to think of routine care in such cases. Indeed, there is where we do need the skilled physician, and he must be skillful in the juggling of his remedial agents. It is there that the real science and the practice of medicine should blend themselves most if we are to get results.

I am asked over and over and over again about some way to get a late secondary serologically negative. It often seems in the mind of the average physician that the only thought he has is getting a negative Wassermann, when indeed, I think it is of little importance in that class of cases. I can see, for one reason, that it might be better not to render the patient sero-

logically negative, but to keep the patient in equilibrium, to keep his cardiovascular system in good condition, and maybe he would live in comfort with his syphilis to a good old age and die of some intercurrent trouble. I can't think at all that the reduction of a Wassermann in a late case of syphilis is a thing of great importance. Certainly in some of the complications, cardiovascular, renal syphilis, or other complications that you can think of, the reduction of the serological findings is of no consequence what ever, in my opinion. To sustain the patient in his economic position, to make him comfortable, is the thing that we should attain and be quite satisfied if we have attained it.

Syphilis, as you know, is a chronic disease, and many is the person who has lived to a very ripe old age, even without treatments. I have seen many a patient go well into years with a positive Wassermann, with no clinical symptoms. Hence the importance of his natural immunity to keep in equilibrium.

Just one more point and I shall close. This is a pernicious thing that I see occurring very often in this day of Wassermans taken by everybody. Here is a man in good physical condition who had syphilis twenty years ago and has lived at comfort with it. He has no inkling at all that he has any lesions. He feels quite healthy. He is in entire equilibrium with his syphilis. But suddenly he comes upon a clinic, gets his Wassermann taken, and gets from six to ten doses of arsenicals, repeated over and over, with the consequence that he comes down by having his resisting power thrown out of equilibrium and we are never able to restore him to a normal resistance. This is what we have done. We have disturbed the sleeping dog, and we have done much more harm than we will ever do good to that patient by undertaking to treat his syphilis unless we had gone about it in a much better ordered procedure. If we had approached it with inunctions or with bismuth and then gently led up to it and probably never used the arsenicals, certainly, in my opinion he would have been in very much better condition.

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**"Let There Be Light"**—One of the best organizations in the country is the National Society for the Prevention of Blindness.

The society is managed and supported by philanthropists and medical men, and there is no question that it is doing great and permanent good. By the researches it makes and the methods it employs it undoubtedly lessens the number of the blind and makes the lot of those who may be partially afflicted much easier to bear. It is through the work of agencies of this kind that a human handicap of this character can be lessened and ultimately removed entirely.

## PITFALLS IN THE USE OF DIGITALIS\*

WM. A. JENKINS, M. D.,

Louisville.

Digitalis is now recognized the world over as our most valuable single drug in the management of cardiac diseases. It has earned the sobriquet of "King of cardiac tonics." Yet it is often misused or improperly used. All too frequently we are disappointed in its use. We do not get the results which we were expecting. What is the reason of this?

### 1. REGARDING THE TYPE AND KIND OF PREPARATIONS THAT WE SHOULD USE.

Cushny says, "The active principles of digitalis are still so little known that no two chemists working on them are agreed as to how many are present in the plant, and it may be questioned whether any one of them has ever been successfully isolated in the pure state. The preparations on the market, however carefully prepared, cannot be regarded as pure substances or as incorporating the whole virtue of digitalis. Preparations put up with great care, always using the same methods, are never of exactly the same strength." The above are the conclusions of Prof. Cushny after a special study of digitalis extending over a period of thirty years. Digitalis preparations are affected by exposure to air and light. Repeated exposure to these two agents invariably cause deterioration. Time also is a factor. All digitalis preparations, no matter how carefully prepared, tend to lose in strength as time passes. It would be a good rule to discard all digitalis preparations after two years from the time of manufacture. In the old days a druggist who sold everything from baseball bats and chewing gum to hot lunch and incidentally drugs on the side, would have on hand a half-gallon bottle of tincture of digitalis, which may have been anywhere from two to five years old. In addition it was constantly exposed to both air and light. Accordingly the likelihood of accuracy and efficiency would be considerably impaired. The much vaunted infusion of the old days, where the druggist had an old paper sack of leaves of undetermined age from which to prepare his infusion, or, in case he did not have the leaves, he would fill the doctor's infusion prescription with an infusion made by diluting the fluid extract. The infusion of digitalis has about passed out of use by good physicians and chemists alike. It has been definitely proven that the infusion, no matter how carefully prepared, has no better therapeutic action than the other standard preparations of digitalis, and in addi-

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tion it has some disadvantages not shared by the standard preparations. Taking into consideration all of these confusing facts, how is the average doctor to determine what type of preparation he should use? By paying strict attention to the following simple rules, (a) The preparation must be gotten out by a house of recognized reputation and integrity. (b) The product should be passed and accepted by the Council of Pharmacy of the American Medical Association. (c) All preparations should be properly assayed, physiologically tested and dated. (d) They should come to us in reasonably small packages, preferably in one ounce bottles for liquid preparations and small bottles or packages for tablet preparations, all having been properly protected from exposure to light and air. Due observation of the above requirements will insure therapeutic accuracy in so far as is humanly possible. Also allow me to say in passing that preparations of digitalis manufactured in France, Switzerland, Germany or England have no especial charm all their own. J. H. Pratt and H. Morrison, working in the Harvard School of Medicine laboratories, carried out a long and carefully conducted series of experiments, chemical (assay methods) and animal experimentation (physiologic tests) with samples of digitalis obtained from the United States of America and the various European countries. Their conclusion in their report was to the effect that American-grown digitalis was quite equal to that obtainable from any part of Europe. And certainly our chemists are as good as theirs.

## 2. METHOD OR ROUTE OF INTRODUCTION OF THE DRUG INTO THE HUMAN SYSTEM

Digitalis may be given by the rectum, by the hypodermic syringe (intravenously, intramuscularly or subcutaneously), and by the mouth. In modern times this drug is practically never given per rectum, therefore, we need only remember that this is a possible and safe route should the occasion arise for its utilization by this means. It is however not accurate or certain.

By the Hypodermic Syringe. A committee consisting of Doctors Robinson, White, Eggleston and Hatcher was appointed by the authorities of the A. M. A. to investigate and report on the use of digitalis. (See Journal A. M. A. Aug. 16, 1924). Their conclusions were briefly about as follows:

First, that the intravenous use of digitalis was dangerous and rarely ever warranted. Therefore this route is not to be considered by the average man in general medicine. Digitalis may be used by the subcutaneous route safely and efficaciously if the circumstances surrounding the case warrant the procedure, e. g., the stomach may be so upset

and irritable that it cannot be depended upon for safe or certain administration by the mouth. The patient may be unconscious and we cannot get the medicine safely into the intestinal tract. The vital capacities of the patient may be so low and the condition of the gastro-intestinal tract may be such that absorption by this route may be questionable or impossible. However, according to the conclusions of the above mentioned committee the hypodermic route possesses no especial advantages from the standpoint of rapidity of absorption or therapeutic activity. In fact the Committee rather discourages the hypodermic method of administering the drug and confidently and boldly states that the oral method of administration is the method of choice for routine work. My own experience and observation leads me to heartily concur in the above conclusion.

## 3. ACTION OF THE DRUG ON THE SYSTEM. WHEN ACTION BEGINS, HOW LONG IT CONTINUES, ACCUMULATIVE EFFECT, HABITUATION

The time allotted to me will permit of only a summary of the accepted and proven facts under this heading. As a rule we can safely state that the first appreciable effects of digitalis are noted in from two to five hours. (Occasionally as early as one hour when given by hypo.) The maximum effect is obtained in about six to twenty-four hours, and the drug remains active for at least two or three days. It takes this drug some time to begin its action and it remains active over a considerable period of time. It is very important to remember this. This peculiarity of the drug caused the famous Prof. Bartholow to say, "Give digitalis today for its effect tomorrow." Therefore, we readily see that digitalis is in no sense an emergency remedy. When we have an acute cardiac need we of course give digitalis at once, perhaps by hypo, not because we expect any immediate effect, but for the reason that the sooner we give the drug the sooner will our effect begin. For the immediate need for the emergency we fall back on some of the quickly diffusible stimulants, such as adrenalin and caffeine-sodium-benzoate by hypo, etc. As a given dose of digitalis remains active in the system for twenty-four or forty-eight hours, or even longer, and we are giving large doses at rather frequent intervals, we obtain a so-called cumulative effect. If we give repeated doses of any drug before the previous doses have expended their full therapeutic energy we have the same thing. It is particularly necessary to remember this first in our digitalis therapy.

Habitation. In the case of any drug that it is necessary for us to give over long periods of time the system becomes, in a certain

sense, refractory to said drug, and periods of rest from the drug are advisable, e. g., note our custom in the use of mercury and arsenic in Lues. This same principle is to be applied in our digitalis therapy.

#### 4. THE QUESTION OF DOSAGE

Various scientific and complicated methods of calculating the dose of digitalis have been devised. They are interesting and have been of value in drawing practical conclusions. It has now been conceded, however, by the best clinicians everywhere that such methods are not essential or necessary to a proper usage of the drug. Simple rules are best for the general practitioner. The mistake that the average man is liable to make is that he uses a dose that is too small, eight or ten minims of digitalis three times a day in the presence of acute cardiac failure is very poor therapy, yet I have seen this plan used in many cases. Over-dosage is not very likely to obtain if the physician knows his drug. Over-dosage, or digitalis poisoning, is very rare. I have never seen in my entire experience a single case that was in grave danger of death in which said condition was strictly attributable to digitalis therapy.

Withering, the celebrated English physician who began his work in digitalis in 1785 and who placed the use of this drug on a scientific basis before the medical profession, says, "You do not get a digitalis effect unless the drug acts on the stomach, bowels, the kidneys or the pulse." He should have added one other thing, viz., an improvement in the clinical symptoms (dropsy, congestion, cyanosis and dyspnea) in the given case. We are getting a therapeutic effect, of course, when our clinical symptoms improve, although in most instances by the time the symptoms begin to improve we have had some manifestations along one or more of the lines mentioned in Withering's celebrated statement. It is now agreed by those men whose opinions are most worthy of consideration on this particular question that there is no especial necessity or advantage in giving the accurately estimated, full physiologic dose at one time. Some cardiologists on being called in to see a case, let us say of auricular fibrillation, will at once give subcutaneously five or six cc's. of digitalis at a single dose. This procedure seems astonishing and quite theatrical to the average doctor. It may produce wonderful effects within a few hours. It is not however necessary and it may be even dangerous. If there is pathology in the conduction bundle, or if degenerative changes are present in the muscular substance of the heart, the shock is too great and it may even tend to bring about a state of ventricular fibrillation, which is a very dangerous thing. Just as good effects with

much greater safety may be obtained by giving said physiologic dose fractionally every few hours. Speaking particularly of auricular fibrillation so great an authority as Dr. Pardee states that he "does not believe that it is ever proper to give the full calculated therapeutic dose of a digitalis preparation at one time." My own opinion is quite in accord with the above statement. In the average adult to obtain the full effect of digitalis it will only be necessary to give from one to one and a half grains of the leaf, or from one and half to two cc's of a suitable liquid preparation every few hours, or three times a day at first. Later as the case improves the interval of administration may be lengthened, or the dose may be decreased, or both to meet the indications. In administering liquid preparations of digitalis a minim graduate is best, as medicine droppers vary in size and thus tend to be inaccurate.

#### 5. INDICATIONS FOR THE USE OF DIGITALIS

Unquestionably digitalis is often misused, even routinely. Of course this is to a great extent a question of experience and knowledge on the part of the individual doctor. It would obviously be out of place and unnecessary for me to give at this time a long, detailed list of conditions in which digitalis should be used. I shall simply give some of the outstanding conditions which every doctor should recognize at once as being positive indications for the administration of digitalis. First, congestive cardiac failure, acute and chronic. 1. Acute congestive cardiac failure. (a) Toxic; (b) Strain or over exertion; (c) Acute infectious diseases, e. g. pneumonia. 2. Chronic congestive failure. (a) Type resulting from valvular endocarditis (decompensated periods); (b) Due to generalized arterio sclerosis with cardiac muscle weakening. Chronic infection or passive congestion of the viscera may bring about the same effect; (c) Cardiac failure in the aged.

#### 6. CONTRAINDICATIONS TO THE USE OF DIGITALIS

Here, just as in the foregoing, most of the contra indications are well known even to the average doctor. However, there are certain positive, important and outstanding conditions of the heart in which digitalis is positively contra indicated. I shall enumerate them briefly. They are as follows: 1. True heart block. 2. Coronary occlusion (early stages). 3. The intense paroxysmal crises occurring in toxic hyperthyroidism. 4. Ventricular fibrillation (if its presence is suspected). Paroxysmal tachycardia is not as a rule benefitted by digitalis, yet digitalis is not harmful in this condition.



In conclusion allow me to say that I am convinced that any intelligent physician by following the above mentioned observations and directions may avoid the common pitfalls in digitalis therapy and may at the same time use the drug scientifically, accurately, safely and efficiently.

### PITFALLS IN THERAPY IN THE USE OF CIRCULATORY STIMULANTS\*

ERNEST B. BRADLEY, M. D.

Lexington.

In the discussion when circulatory failure is spoken of, it is not meant to include congestive heart failure, the treatment of which belongs in this symposium to the speaker on digitalis—neither is included the treatment of the failure of the heart from anginal attacks or coronary disease. This discussion is limited to that group of conditions where the heart itself is not at fault as much as the rest of the circulatory apparatus. In other words, the therapy of circulatory failure will be discussed as it occurs—in shock from surgical operations or injury; in acute febrile conditions, such as typhoid fever, pneumonia and the like; and in various toxic states, such as advanced hyperthyroidism.

It is evident that this paper cannot undertake to discuss shock itself. We can only mention the various procedures used in preventing and treating shock which are recognized by all surgeons: short anaesthesia, nerve blocking, control of hemorrhage, efforts to prevent the loss of body heat, delicacy in handling tissues, transfusions, and salt solution by vein or hypodermoclysis. After shock has occurred, measures such as transfusions, the use of salt solution, elevation of the foot of the bed, the application of heat, oxygen inhalations, bandaging the extremities, and other procedures are far more valuable than drugs. Time will not permit these methods to be dealt with in this paper. Then too, morphine, probably the most valuable drug in this condition and the one in almost universal use, cannot by any stretch of the imagination be classed as a circulatory stimulant. What have we left? A partial list of drugs which have been used for their action on the circulation would include: digitalis, strophanthus, strychnine, atropine, ergot, adrenalin and ephedrine, the nitrites, alcohol, camphor and caffeine. In a general way these drugs may be grouped according to their action as follows:

(a) To accelerate the heart—atropine camphor, caffeine strychnine.

(b) To strengthen the heart—caffeine,

digitalis, strophanthus, strychnine.

(c) Vaso-constrictors—atropine, caffeine, ergot, suprarenal extract and ephedrine.

(d) Vaso-dilators—nitrites, alcohol.

In the "strychnine age" which has now passed on, this drug was in almost universal use. As a circulatory stimulant it is almost a complete failure. It rarely raises the blood pressure and fails usually to accomplish any good. The nitrites, it is needless to say are contraindicated in lowered blood pressure and should be reserved for hypertensive and coronary conditions only.

Atropine raises the blood pressure and stimulates the higher centers in the brain. When the respiratory center is involved, it may prove valuable and for this reason it is used in combination with morphine, which depresses this center. However, by its action on the vagus it increases the heart rate and at times may do harm rather than good.

Camphor usually given hypodermically dissolved in oil has been the preference of many surgeons. It dilates peripheral blood vessels, increases the rate of the heart and stimulates the higher centers in the brain. Personally, I have never seen any effect from its use, but it has not been entirely abandoned by good clinicians. With Cardiazol, which is a synthetic product and I am told related to camphor, I have had no experience.

Ergot which has been used in shock because it is said to raise the blood pressure, is no longer employed for this purpose. Alcohol is in quite general use by some practitioners for its effect on the circulation. Except for the feeling of general well-being and for its effect on quieting the brain there is no justification for its use. Aromatic spirits of ammonia which is commonly used in fainting and "weak" spells probably owes any action that it may have to the alcohol it contains.

Of the drugs mentioned, adrenalin or ephedrine and caffeine remain. Adrenalin, no doubt at times is life-saving. When injected into the heart muscle it will at times cause it to resume action after it has stopped beating and when given intravenously or subcutaneously its action in raising the blood pressure is prompt. The action of ephedrine is quite similar to that of adrenalin.

For failing circulation, the drug of choice it seems to me is caffeine. In the form of the sodium benzoate salt when given hypodermically in doses of from 5 to 7½ grains it has a prompt effect in stimulating the heart to stronger contractions, raises the blood pressure and stimulates the brain. Its action is not prolonged and it must be repeated after four to six hours. Sometimes it causes over-stimulation of the higher centers causing restlessness and sleeplessness. Be it understood, however, that no drug can

\*Read before the Kentucky State Medical Association, Bowling Green, September 15-18, 1930.

take the place of the other measures which have been mentioned.

In the failing circulation of advanced thyroid disease, or, in circulatory failure in acute illnesses, no drug is very effective, yet caffeine is probably better than the others.

#### SUMMARY

In circulatory failure as distinguished from congestive and anginal heart-failure, no circulatory stimulants are very effective. The giving of morphine with or without atropine along with appropriate measures such as transfusion, hypodermoclysis, heat, etc., are much more valuable. However, at times adrenalin and at other times caffeine may be of great value.

#### DISCUSSION

**C. W. Dowden, Louisville:** If we assume that the indication for the use of cardiac stimulants or circulatory stimulants presumes some degree of circulatory failure, then it seems to me that the first thing of importance is to determine whether or not circulatory failure is actually present.

The next step after determining that circulatory failure is actually present, before outlining any intelligent treatment, is to determine as nearly as possible what and where is the underlying cause of the circulatory failure. While of course the failure is determined by disturbances of circulation in other parts of the body, objectively such as pulmonary edema, edema in dependent parts of the body, and subjectively in shortness of breath, dyspnea, and so forth, we feel, and I think quite properly so, that the first thing we want to know is the functional condition of the heart, and we direct our attention primarily to the functional condition of the heart.

When tiring on exertion prevents a child from play as other children play and a little later on shortness of breath prevents the boy from entering into such work as he is interested in, and still a little later on when as a result of exertion this is added to his dyspnea cough and sometimes hemoptysis, we can readily appreciate by going over this history that he has had a failing cardiac reserve until finally very little is left.

What are we to do in that type of case? Give him digitalis? Not always. If such condition is due to narrowing of the mitral valve, thus limiting the amount of blood that passes even under the high pressure in the left auricle, the hypertrophied right ventricle pumps blood into the lungs faster than it can escape through the narrow mitral orifice and consequently pulmonary oedema and hemoptysis soon develop.

Naturally digitalis will not help this condition except in so far as we have, as a result of that, a failing heart muscle. We have a mechanical condition, and the best advice we can give in that condition is rest, and exercise within

the capacity of the heart.

Again, we have that type that is very closely akin to surgical shock in which we have as the result of a disturbance of rhythm, cyanosis, with weakness and dyspnea and low blood pressure and frequently pallor. Of course, we don't give digitalis in surgical shock, but in that type of case where there is disturbance of rhythm, and particularly increased heart action, we do get marked results from the use of digitalis which will regulate the rhythm, restore the color and overcome the weakness, and so forth. The condition is due to diminished output of blood by the heart and actual diminution in oxygen supply to the tissues.

Finally, in all, possibly I should say practically all, grave emergencies where there is extreme dyspnea, orthopnea, cough, frothy sputum, whether the blood pressure is high or low, whether or not there is edema, whether or not there is a murmur, the one drug of choice is morphine and plenty of it until the emergency is over. By inducing quiet and overcoming panic and perhaps reducing cardiac output, it permits the re-establishment of normal distribution of blood. It should not be combined with Atropine which may do harm by increasing the rate. Digitalis has no effect controlling the paroxysm but may diminish the frequency of attacks. I feel of all the emergency drugs morphine probably is the one of very greatest importance.

**John W. Scott, Lexington:** I am more or less responsible for this program, and I feel I have to rise in defense of it when one speaks of the riddle which has been propounded. I am particularly interested, because it has been considered a riddle. The purpose of the discussion (and I think it has been admirably served) is to contrast the two different clinical pictures which are confused often in the medical mind; these two clinical entities are circulatory failure on the one hand and congestive cardiac failure on the other hand, one of them treated as efficiently and as specifically, almost as anything in medicine by the drugs of the digitalis group, and the other in which digitalis is not only too slow, as some of the speakers say, but is absolutely contraindicated. In my mind, the reason that it doesn't do more harm in those conditions is that it is slow, that it has been given in insufficient amounts to get digitalis effect. The reason that many patients have not been killed by those who have given digitalis in surgical shock has been because they have had an entire misconception of the dosage of digitalis and have considered a c. c. of digitalis in the subcutaneous tissues as a therapeutic dose.

I don't see why one should hesitate to call morphine a circulatory stimulant. One doesn't have to go into the exact pharmacology of a drug to say that it actually produces stimulating effects on certain cells to be a stimulant. Many



things are stimulants by being depressants. Alcohol is a stimulant for being a depressant. Morphine is a stimulant by choking off the trauma which is coming from the injured leg, we will say, in a compound fracture, traumatizing the central nervous system, producing shock, and when that trauma is diminished by the administration of morphine and those impulses are abolished, the patient is stimulated; he is in circulatory shock and he is stimulated, no matter whether it is done by the action of a drug which depresses the brain or by one which stimulates the brain as caffeine does.

As to the use of digitalis and the mode of its administration, it seems to me that subcutaneous injection, as Dr. Jenkins has said, is rarely indicated, in fact I feel that it is never indicated, for the reason that in those cases in which the drug cannot be given by mouth, which as everybody agrees is the optimum route for administration, it can be given by rectum and is given in a very effective way by rectum.

Levy, many years ago, by very careful experimentation proved that the drug acts in the same dose with the same speed, produces exactly the changes in the electrocardiogram and the fibrillating auricle, slowing the fibrillating auricle, when it is given by rectum as when given by mouth.

That being the case, the patient who has nausea from his congestive cardiac failure and cannot take any drug by mouth, can get his entire daily dose in one enema. We have seen it is not a drug which produces its effect immediately, therefore the entire dose for a day or two days can be given with one administration of the drug by rectum. The entire dose for 24 hours, that is, one or two drams, of a standard tincture more or less as the case may be in four or five ounces of water being given by rectum, with as definite, prompt digitalis effect as if it were given by mouth.

The subcutaneous use of the drug has been discussed. How can you give two drams of a liquid equivalent to the tincture of digitalis into the subcutaneous tissue, or four drams as you would have to do in the course of three or four days, in order to produce prompt digitalization. In order to give that volume of the drug in the subcutaneous tissue you would set up tremendous irritation in various locations. If you gave it all in one location you would certainly set up an abscess, and in various locations you would have multiple highly irritated areas.

Time does not permit discussion of intravenous administration; a very useful method in emergency. I submit that there are only three ways to give digitalis; by mouth, by rectum and by vein and that subcutaneous or intramuscular injection should not be employed.

**W. O. Johnson, Louisville:** The difference of opinion regarding the administration of digitalis in thyro-toxic conditions is interesting.

I feel that the attitude of most of those dealing with a number of thyroid conditions regarding the use of digitalis in thyrotoxic states can be summed up as follows:

(1) The administration of any form of digitalis to a heart of a person that does not show evidence of cardiac damage is unnecessary.

(2) The heart that has previously been damaged by rheumatic conditions, over-work, toxins or what not, and shows evidence of impaired function, damage or failure should be given digitalis as any other similar heart condition regardless of the thyrotoxicosis.

One does not hesitate in the preparation of abdominal, or other operations where cardiac damage is present, to carefully prepare the heart before the operation, so why should you not treat the cardiac damage of a thyrotoxic condition in a similar way.

In the toxic adenoma where cardiac damage is more marked, the death rate is highest. This is in great part due to the over estimation of the toxicity and the under estimation of strength of the heart. Such deaths can be avoided by preparing the patient as a damaged heart case, with rest, diet, digitalis, and plenty of morphine and operating upon the patient when the toxicity is low, and most important, when the heart has properly recovered to withstand the operation.

**Andrew Sargent, Hopkinsville:** I want to know why the essayists have omitted from this discussion the product for which Kentucky is most noted at home and abroad. It is the quickest cardiac stimulant in the world, and one of the best. In these prohibition times I won't mention it.

I should like to ask the essayist why, in contraindication for digitalis, he didn't mention myocardial and endocardial conditions, infectious, bacterial, and so on. It seems to me in those cases it is positively contraindicated, is injurious, and is damaging.

In any continued use of digitalis I prefer to give it alone, one dose per day. Some patients will respond to thirty drops of digitalis once a day, and others will respond better to five times or six times that dose. If you are giving digitalis to a patient, you should see that patient every day and watch the effects, and when you think you have got results you had better call it off.

I should also like to ask the essayists why they didn't mention squill, one of the very best of cardiac stimulants. In feeble conditions with low blood pressure, we have no agent so valuable as the fluid extract of squill. It will equalize the circulation, it will increase elimination, it will protect the lung against infection, it will prevent pneumonia, and it will make the patient comfortable. It will arouse all the secretions of the body and aid in elimination.

**Ernest B. Bradley, Lexington, (in closing):**

I agree with Dr. Scott, Dr. Dowden and Dr. Morrison that morphine is probably the most valuable drug we can use. In other words, there are conditions other than shock, other than circulatory failure that have to be combatted. There are the outside stimuli; pain, the restlessness of the patient, and his mental attitude toward the disease. So, I am perfectly willing to put morphine in as a remedy for the treatment of circulatory failure. I don't believe, however, that you will find it classed as a circulatory stimulant in any book on pharmacology. It may act to relieve circulatory failure, but the subject of the paper is "circulatory stimulants"

One of the pitfalls in the use of strophanthin, or ouabain, which is the crystallizable strophanthin, was not mentioned. I have seen consultants advise the use of intravenous strophanthin for patients who have been taking digitalis for some time. That is a pitfall, because in that case you might kill the patient by overdigitalization, as strophanthin acts in the same way as digitalis.

Dr. Sargent spoke of some product of Kentucky. I don't know just exactly what product he was talking about, but I did mention alcohol in the paper, not as a circulatory stimulant, because it, like morphine, may be a very useful drug in circulatory failure. I think undoubtedly it is valuable, and the giving even of a teaspoonful of aromatic spirits of ammonia is sometimes useful on account of the suggestion it contains. I don't suppose any one of us here hasn't at some time said: "The best thing you can take now, if you have one of those feelings of weakness or if you feel your heart is not doing all right, is to take a teaspoonful of aromatic spirits of ammonia." Patients always keep it in the house and take it and it doesn't do them any harm. It almost always does some good. I don't think the amount of alcohol in it does any particular good, because while that product is contained in aromatic spirits of ammonia, the result of a teaspoonful could hardly be enough to act as a circulatory or mental sedative; it is not quite enough. We don't consider alcohol as a circulatory stimulant any longer, however. We don't say that alcohol may be of no value in pneumonia, but it is not a circulatory stimulant. It may be of value in anginal attacks. It is of value in circulatory failure for the same reason, but to a lesser degree than morphine, through its sedative effect rather than by its stimulative effect.

## FOREIGN BODY, OBSTRUCTION OF INTESTINE WITH PERITONITIS; CASE REPORT\*

G. G. ALTMAN, M. D.

Louisville.

Patient, Henry L., male, white, aged sixty-three, seen in consultation with Dr. Louis Baer, midnight January 6, 1931.

History: Acute, severe abdominal pain paroxysmal and intermittent, beginning about thirty hours previously, throughout right side of abdomen and particularly at level of umbilicus. Onset of pain followed by vomiting which was repeated at irregular intervals five or six times. No particular qualities of vomitus. Patient had taken one-half ounce of magnesium sulphate shortly after onset and one bottle pluto water twenty-four hours later. No defecation obtained. Obstinate constipation for three or three or four days previously.

Past history and family history essentially negative. Personal history indicates low type of hygienic environment. Bachelor, who lived quite alone, prepared his own meals and ate with his false teeth removed. His general occupation was to distribute circulars. Venereal diseases denied.

Physical Examination: A man apparently in his sixties lying in bed with legs extended and appearing seriously ill. Skin dark and moist. Temperature 99.6° F., pulse 94 with good volume; respiratory rate 24. Breathing quite superficial. No cyanosis. Head essentially negative. Mouth barren of teeth except one lone upper frontal carious snag. Foul breath. Tongue well coated but not particularly dry. Heart and lungs negative. Rectal examination revealed moderate prostatic hypertrophy. Extremities negative.

Abdomen: Moderate distension particularly throughout lower right quadrant. Slight quadrant on right side. Tenderness on moderate palpation in lower right quadrant with greater severity at point about one and one-half inches to right of umbilicus.

From the above examination we were inclined toward a tentative diagnosis of a more or less acute or subacute process in the abdomen. Bilateral small inguinal herniae, but the rings could be readily felt and there was no incarceration.

Blood Examination: Leucocytes 16,000; polymorphonuclears 86%. The Schilling count showed severe shift to left.

Urea nitrogen, 29 mgm per 100 c. c. of blood. Was unable to get blood chloride estimation before patient was removed to operation.

\*Read before the Jefferson County Medical Society,





Foreign body (beef bone) recovered from third portion of jejunum.

ing room.

Urinalysis: The urine showed many casts (hyaline and finely granular); no blood, no sugar, and no albumin.

Scout x-ray plate ordered but absence of technician and desire to save time precluded the possibility of same.

A carefully given low enema brought good results. (nurse's report).

Provisional Diagnosis: Peritonitis diffuse; probable intestinal obstruction.

Operation: Usual preparation made for abdominal section. Gas-ether anesthesia. Median right rectus incision from an inch above umbilicus to pubes. All veins were noticeably distended. Upon opening the peritoneum, came an abundant amount of purulent material apparently from the pelvis. There was bulging of gas distended intestine of dark purple color, and without lustre. This was the small intestine, which was followed upward, and in the third portion of the jejunum there was found a foreign body (as illustrated) lying crosswise, having perforated the jejunal walls on opposite sides with perhaps one-fourth of an inch of either end protruding from the lumen. This was found to be bone, and was removed simply by slight traction with a hemostat. On examination it was found to consist of a piece of probably beef bone one and seven-eighths inches in length, one-half to three-eighths of an inch in thickness, with both corners coming to a point in a slivered sort of a fashion. The openings in the jejunum were closed with pursestring of linen and a second layer of mattress sutures. Gauze was used to wipe the lym as best possible from the intestine, and several gallons of hot sterile saline used to cleanse the cavity. Because of the general condition of intestine, precluding any attempt at enterostomy in this region, the appendix was removed in part, and a tube inserted through the cecum and into the ileum through the appendicostomy opening.

A gauze coffer-dam was placed in the pelvis. The wound was closed with cat-gut, equisitone and dermal, in the usual manner. 1000 c. c. of 5% glucose in saline was given intravenously during the closure of the abdomen.

The patient's condition on leaving the table was good; pulse 120; respiration 26; no shock. Reaction from anesthetic was good.

The treatment consisted of morphine abundantly, and the use of 10% glucose in saline, venoclysis (Hendon method), continuous, 200 c. c. per hour for six days with nothing by mouth.

On the fifth day the patient passed by rectum a large handful of peanuts which was evidently the ultimate obstructive factor. The convalescence has been quite uneventful other than the patient removed the enterostomy tube the sixth day, causing some slough in the wound.

It may interesting to note that the man has no recollection of having swallowed the bone.

### DISCUSSION

**Louis Frank:** Dr. Altman has presented a very interesting case report. In the last eighteen months a number of similar cases have been published in the Journal of the American Medical Association, that is in which operation became necessary because the individual had swallowed a foreign body. Two or three articles on this subject have recently appeared, one in the Annals of Surgery a year or two ago, another in the New England Journal of Medicine several months ago. In the latter the author reported three cases in which swallowed foreign bodies produced symptoms necessitated operation.

I was particularly interested in Dr. Altman's case because six years ago we saw a woman who had swallowed a fish bone which lodged in the sigmoid producing a perforation. At operation we encountered a mass in the sigmoid in which we found the fish bone.

Rossiter has reported some very interesting cases in the past year where he found large foreign bodies in the terminal intestinal segment which were introduced from below.

Only a few foreign bodies swallowed lodge in the small intestine, the majority of them find lodgment in the large intestine on account of greater fixation and greater peristaltic activity. Cases have been reported where foreign bodies perforated the cecum directly opposite to the ileocecal valve.

**George A. Hendon:** I could not be expected to allow an opportunity like this to pass without calling attention to the essential factor in this man's recovery. This case stands without a parallel so far as my reading and observation extend.

The cases referred to as appearing in the literature consisted of related instances where such foreign bodies as tooth picks and similar

substances penetrated the intestinal wall, making minute perforations that could be sealed with lymph deposits immediately, thereby protecting the peritoneum. Or the leak was so small that a protecting and resisting organization of adhesions could be established as a means against absorption and inflammation.

In the case reported by Dr. Altman, there is the grossest kind of traumatism to the intestinal wall.

A piece of bone 1 7-8 inches long and 1-2 inch wide, sticks through the jejunum on both sides and produces a large rent through which intestinal contents flow in abundance, at the same time obstructing the lumen of the intestine. This condition existed thirty hours before the operation. The patient is a man advanced in years and low in nutrition, living in poor hygienic surroundings. We must give due credit to the high grade of surgery and its prompt application which obtained in this case, but I believe the issue was decided by the post-operative treatment which consisted in venoclysis, thus assuring the patient an adequate supply of both fluid and nutrition at a rate (200 cc per hours) compatible with absorption and assimilation.

Roughly speaking this means a pound of dextrose and a gallon of water per day. I wish to emphasize the fact here that this can only be accomplished for a sufficient period of time by using the cannula; it cannot be done with a needle.

Dr. Altman adopted another procedure which I have found very useful and have employed it in seventeen cases of extreme peritoneal infections, namely catheterizing the appendix. The meso-appendix is tied and cut, the end of the appendix is excised and a catheter passed through the lumen of the appendix into the cecum and sutured in position. The catheter with appendix is then brought outward through the lower angle of the wound and serves as a means of intestinal drainage and a portal of intestinal medication. In six days the appendix sloughs off after having served a useful purpose. In none of my cases has fistula resulted.

#### Argentaffin Tumors of Small Intestine.—

Four cases of argentaffin tumor of the small intestine (carcinoid) are reported by Ritchie, one with mesenteric and hepatic metastases. A brief review of opinions as to the nature of these tumors is made, and the conclusions drawn are (1) that the nature of the tumors depends on the nature of the chronic-argentaffin cells of the normal intestine, not yet understood, and (2) that until this point is decided argentaffin tumors must be placed in the same category as basal cell epitheliomas of the skin, with reference to malignancy and general characteristics.

## A CASE OF SEVERE ULCERATIVE COLITIS TREATED WITH BACTERIOPHAGE\*

WM. E. APPLEHAUS, M. D.,

SAM P. MYER, M. D.,

JESSHILL LOVE, M. D.,

Louisville.

During the past few years the profession as a whole and proctologists in particular, have taken a renewed interest in the subject of ulcerative colitis. Despite the large amounts of clinical and experimental work the treatment is still most unsatisfactory, and we are groping in the dark both for the specific cause and cure of this affection. The case I wish to present this evening is of interest due to the fact that an apparent cure has been obtained by a rather new form of therapy when the older and more accepted forms of treatment had failed.

G. R. A., aged 32, color, white, male. Weight, 140 lbs. Height, 6 feet, Occupation: construction engineer. Was first seen by me in consultation with Dr. Sam P. Myer, on December 23rd, 1930. His family history was essentially negative.

Past History: Had measles, whooping cough, mumps and chicken pox when a child, and typhoid fever at the age of 9 years, rather light attack. Was more or less underweight all life. No other serious illnesses, accidents or surgical operations. Was more or less constipated until 1927 when diarrhea first started. Prior to attack of diarrhea had several attacks of tonsilitis, throat would swell almost closed.

Present History: In 1927 was working in the mountains of Kentucky when he developed a severe diarrhea. The usual treatment was ineffectual and diarrhea became very much worse necessitating his leaving his work and going to a large clinic in the Midwest. At this clinic he was told that he had a low grade infection in his intestine and they advised removal of his tonsils which was done at that time. After tonsillectomy his weight increased from 145 to 165 pounds. He rested for two months and his diarrhea gradually improved; however, he would have periodical attacks of "loose bowel" alternating with constipation and would bleed at nearly every defecation. Would notice that if he became fatigued or was indiscreet in diet diarrhea would recur and bleeding would become more profuse. During all this time could never pass gas without going to toilet,

\*Read before the Jefferson County Medical Society, April 20, 1931



as it was always accompanied by pus and mucus.

Last summer his work made it necessary that he drive over an average of 2,000 miles a month over rough roads and he became so fatigued that diarrhea became acute. In September he was having from twenty-five to thirty defecations a day and passing large quantities of blood. He was treated by local physicians who gave medicated enemas of mercurochrome, hetaphen, soda, etc.; along with this treatment he took sodium sorbicinal and bismuth subgallate. On December 21, consulted Dr. Myer who sent him to Norton Infirmary. During the entire time from the attack in 1927, even though patient was obstinately constipated, he could not pass gas without exuding mucus and blood.

**General Physical Examination:** Temperature 98.6° F. Pulse 80. Respiration 20. Blood pressure 120-74. Well developed, fairly well nourished. Physical examination negative except for tenderness over entire abdomen, being more prominent over sigmoid and cecum. Rectal examination showed evidence of marked irritation about outlet. muscles exceedingly sensitive with small sized internal hemorrhoids and considerable eversion of mucosa due to straining. Proctoscope showed mucosa of the rectum and lower sigmoid as far as could be observed literally covered with rather well-defined, punched-out ulcers. Lumen was contracted and filled with admixture of blood and pus. Patient had been having about thirty intestinal movements a day, was considerably nauseated and had marked distress in his abdomen and pain in rectum radiating down legs. Repeated daily stool examinations revealed no parasites whatsoever. On direct smear numerous gram-positive organism occurring in chains were present. Previous stool examination by Dr. Allen reported no parasites but presence of large amount of staphylococci and streptococci. These organisms were found constantly in each examination. His free hydrochloric acid was 37 and total 44. Urinalysis negative. Blood count: Hemoglobin 87%. Erythrocytes, 4,100,000. Leukocytes, 8,200. Polymorphonuclears, 65%. Lymphocytes, 25%. Endothelials, 2% and Eosinophiles 8%.

**X-Ray Findings by Dr. C. D. Enfield:** A barium enema was administered. The rectal pouch is small and probably hypertonic. the sigmoid is somewhat narrowed and tubular although not so markedly so as is the case in established colitis. There is no spasm.

The colon proximal to the splenic flexure is normal in contour, position and tonus. There is rather marked intolerance of fluid, the entire colon being filled to a point of

discomfort with approximately two pints of solution.

A barium meal was administered and the colon examined fluoroscopically approximately twelve hours later. At this time the entire left colon had emptied. There was a dense residue confined to the cecum and ascending colon. The appendix was not filled. The head of the cecum was freely movable and not tender. At the previous examination the ileo-cecal valve was found somewhat incompetent. At this time there was no barium residue in the ileum.

**Conclusion:** Marked irritability of the lower left colon and rectum with apparently no organic change of sufficient extent to be demonstrable by x-ray unless the somewhat tubular character of the sigmoid and descending colon indicates, as it probably does, some thickening of the wall.

The ulcers were swabbed and curetted and specimens sent to Dr. Weeter for culture and vaccine. His report was:

(1) Liver digest broth boiled to expel oxygen, cooled and inoculated with material.

(2) Stain at eighteen hours showed numerous gram negative bacilli, and gram positive cocci occurring mostly in pairs, also in chains of four to eight.

(3) Subculture on blood agar plates grown in closed jars under reduced oxygen gave:

- (a) Gram negative bacillus. (*B. coli*)
- (b) Gram positive coccus occurring in pairs and chains. Vaccine made from this organism.

Patient's diet was restricted to proteins alone and then to vegetables alone. Various types and combinations of foods were allowed but the diarrhea apparently was unaffected. We omitted eggs and milk from his diet due to the fact that he stated each time he ate eggs he would have hay fever.

Transduodenal irrigations with instillation of yatren, anayodin, gentian violet, kerosine, etc. did not improve patient. The giving of barium sulphate, kaolin and large doses of bismuth had no effect. Local applications to the mucosa and constant irrigations of permanganate, chlorozone, mercurochrome, argyrol, silver nitrate, etc. were used without benefit. In fact, the patient seemed to be getting worse instead of better. Intravenous injections of mercurochrome and neosalvarsan were tried but patient did not respond. The diarrhea was becoming so much worse that stovarsol and emetine were tried empirically. The giving of specific vaccine and non-specific protein had no effect whatsoever. The patient's general physical condition was such that cecostomy or appendicostomy was impossible. On the suggestion of Dr. Lillian H. South we sent a

specimen of stool to Dr. Jesshill Love at the University of Louisville requesting him to make a bacteriophage. During the interval that the phage was being prepared numerous intestinal antiseptics were tried.

On January 31, 1931, I gave patient a cleansing irrigation of plain water after which I instilled two ounces of the phage into intestine with the patient inverted. In contrast to former retentions patient was able to retain the first dose of phage for four and one-half hours without difficulty. During the next twenty-four hours he had only nine stools. This instillation was repeated the following two days. On the fourth day I introduced a duodenal tube and instilled two ounces of phage in four ounces of water into the duodenum. This was repeated every second day. On the fifth day we began giving the phage hypodermatically twice a day in increased doses. On February 14, after giving the phage for nine days, patient had a reaction temperature rose to 101.6°, had considerable cramping and griping in abdomen and complained of rather severe pain in each area where the phage had previously been injected. He had been making marked improvement in every way. Protoscopic examinations showed healing of ulcerations, the stools were much less frequent and now semi-solid. On February 15, direct smears from the lesions were negative for the streptococcus. The hypodermic injections and transduodenal instillations were discontinued and patient continued to improve. Two weeks after discontinuing the use of the phage the peculiar odor of the phage was still present in the stool.

The patient continued to improve. His stools gradually became more formed and his general physical condition much better. He was dismissed from the hospital on February 17, 1931, complaining only of soreness and bleeding from the rectum due to the hemorrhoidal condition that was present. In view of the type of infection it was decided not to attempt treatment of hemorrhoids until the intestine was entirely well. He came to the office on the average of twice a week for protoscopic examination and at no time was there any evidence of return of ulceration. The middle of March his hemorrhoids were injected with castor oil and after two injections he had no more protrusion or bleeding. He has had no further treatment and has been attending his regular duties. He has made several business trips out of town. When I examined him yesterday his intestine showed no evidence of any ulceration or bleeding. The ano-rectal zone, however, was somewhat granular and muscles somewhat tight. The improvement and progress after

beginning the use of the phage was most gratifying.

**Preparation of Phage:** The usual bacteriophage is obtained by subjecting a bacterial filtrate to a series of specific cultures. The phage for the primary inoculation is gotten from a filtrate of an emulsion of organisms from the site of infection. The accepted theory is that a phage is produced *in situ* that is specific for the offending organism. Consequently, such a filtrate contains the isolated bacteriophage.

After a number of passages the "phage-bearing filtrate" increases in potency and is indicated by a clearing of the culture. This clearing is actually a lysis, as may be shown by an absence of organisms in direct smears. The accepted method is to use 10 cc. of culture media adding enough of a bacterial emulsion to make it cloudy. It is then incubated for six to eight hours. Then add  $\frac{1}{2}$  drops of a filtrate from the preceding culture. This phage culture, or rather, "filtrate culture," is then incubated twelve to eighteen hours, and finally filtered. The process is then repeated until a lysis is produced.

However, for this case a culture was taken from an emulsion of feces and urine for a stock culture. The series of cultures were taken from it. The original emulsion of feces and urine was then filtered. It was assumed that the filtrate contained a phage for the primary inoculation. Each succeeding filtrate was then passed through a series of fifteen flasks containing 250 to 300 cc. of media, plus the emulsion of many organisms. There was no clearing of lysis obtained. However, when the final filtrate was tried against the individual organisms of the culture, the bacillus coli was lysed. D'Herelle, in his original work, claims that a strong bacillus coli bacteriophage will lyse other organisms in the gastro-intestinal tract. This probably happened in this individual case, for in the final smears, taken directly from the gastrointestinal tract, the streptococcus hemolyticus, staphylococcus and diplococcus originally present were not seen.

The idea of the anti-virus lately introduced perhaps played its role in this case. The so-called anti-virus is merely filtrate from ten to fifteen day old culture, in which the organisms are supposed to have overgrown themselves. The anti-virus is present in the filtrate.

The materials used were stock culture media, heart infusion broth with an added quantity of agar and dextrose. The heart infusion broth was a dehydrated commercial preparation and was made according to formula. Normal sized Bergfeld filters were



used and various sized flasks and other apparatus as the condition warranted.

### DISCUSSION

**Virgil E. Simpson:** While the study of bacteriophage covers, now, a number of years its nature, source, action and significance remain largely unsolved.

It is, probably, protein in nature since it appears to have antigenic properties; it is ultramicroscopic if it be corpuscular; it is filterable if it be a virus; it is subject to centrifugalization and is influenced by electrical energy. It can only be demonstrated in association with virile bacteria and these appear to show remarkable variation in their relation to the development of a phage. Some strains of a species of organism seem incapable of serving in the development of a phage; some appear possessed of a resistance to its action which may be complete or partial, acquired or natural. It is common knowledge that the plasmodium of Laveran may become quinine-fast; that under long continued, inadequate dosage spirochetes may become mercury-fast; in a similar fashion it seems that bacteria may become phage-fast.

It is believed to not exist in the body of the infant at birth but is demonstrable in the gut within a week thereafter, and continues in varying activity during the remainder of one's life. It thrives best and comes to exhibit maximum potency under the identical conditions found most favorable for the development of bacteria. It can exist and keep its activity in all of the body fluids save bile which lessens its potency.

By activity or potency is understood its effect on bacteria. In vitro a phage will destroy or dissolve germs which are not resistant to its action. Just how it causes such an effect is yet subject to discussion. It may act as a mere parasite on the pathogenic germs; this is d'Herelle's idea and is not without analogy e. g.: the nitrifying bacteria in modern sand filtration systems; it may act as a condition which sets up an autolytic tendency in the germ by disturbing its metabolic activities; it may stimulate the reticulo-endothelial apparatus thus acting partly or wholly through phagocytic phenomena; it may, in vivo at least, detoxicate bacterial proteins thereby lessening or preventing allergic sensitivity.

However, it may act it is well-nigh spectacular to witness the inhibition of bacterial growth by a virile phage, even their actual destruction. I say virile, for it appears that a phage may be highly or weakly potent even as bacteria may be highly or weakly virile. It is when in contact with weakly potent phage that a bacterium may build up a resistance and become phage-fast.

Upon this activity of a phage rests its standardization for therapeutic purposes; 0.000001 c. c. should completely and permanently cause dissolution of 250 million bacteria per c. c. Unless a phage is tested and only those of high potency used, harm may result by converting the bacteria into a phage-resistant strain. Another interesting feature in phage activity is the factor of specificity and one should not be surprised to learn that this specific action may apply to either a species or strain. This fact warrants the belief that there may be found a phage for every bacterium. If a bacterium is homogenous a phage may be potent for all infections by that germ. Such is the case with the bacillus dysenteriae, hence an autogenous phage is not essential and only its potency is of moment. When the bacterium belongs to a heterogenic species then a phage must be prepared from the patient's germs. Such a requirement obtains with colon bacillus, typhoid bacillus, vibrio cholera and all the cocci group. This difficulty has been partly overcome in the staphylococcus family which while heterogenic appears susceptible to beneficial action from a polyvalent phage.

The results obtained, to date, with phage treatment of cholera, bacillary dysentery, bacillus coli and some staphylococcus infections cannot be considered with difference. That it offers possibilities with still other infectious diseases appears reasonable. That it has limitations, as yet unknown and undefined is equally apparent. That its unstudied, unscientific use will but delay its proper evaluation is indisputable.

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**Transfusion of Incompatible Blood Without Reaction.**—Grove and Crum report the case of an 8-year-old group O patient who was given a transfusion of 300 cc. of group B blood without at any time exhibiting the slightest reaction. The absence of symptoms was apparently due to the inability of the B iso-agglutinin to clump B corpuscles at body temperature. The transfuse B corpuscles had completely disappeared by the seventh day. The transfusion of the incompatible blood was made on account of a mistake in the grouping of the patient due to contamination of the anti-B grouping serum with a "mustard bacillus," which produces a nonspecific agglutinating property for all human blood cells. A rousing check of the usual method of grouping with known test serum against freshly obtained A and B corpuscles, and also against group O corpuscles.

MULTIPLE INJURIES SUSTAINED IN  
MOTOR CAR ACCIDENT\*

GUY P. GRIGSBY, M. D., F. A. C. S.

Louisville.

(Fracture of left thigh; fracture of horizontal ramus of os pubis; fracture near left ischiopubic junction; rupture of urethra. Later unilateral pyonephrosis; nephrectomy; recovery.)

I have long been imbued with the idea, and have so expressed myself on former occasions, that clinical records of unusual cases, with appropriate commentaries, may possess greater interest and scientific value than especially prepared more or less didactic or statistical papers. That is my apology, if one be needed, for describing the following case of multiple injuries sustained in a motor car accident, which in some respects seems rather unusual. Perhaps the most interesting feature is that the patient not only recovered from the extensive injuries, but also survived a later nephrectomy.

Two other somewhat similar cases have been encountered in my experience. The ruptured urethra in each was treated by the method to be described, and the ultimate outcome was entirely satisfactory.

The results obtained in these cases illustrate what may be accomplished by patience, persistence, and carefully executed surgical technique, provided adequate co-operation of the patient can be secured and maintained.

## CASE REPORT

Patient, E. H., a male, aged 29 years, was admitted to the Jewish Hospital, Louisville, Kentucky, September 13th, 1928. According to the history, he was hurt March 27th, 1928, when he lost control of a motor truck he was driving and run over an embankment. The following injuries were sustained: (1) fracture of the left thigh; (2) fracture of the horizontal ramus of the os pubis; (3) fracture near the left ischiopubic junction, and (4) rupture of the urethra.

The patient had been treated in a hospital at Norton, Virginia, from date of the accident until sent to Louisville and admitted to the Jewish Hospital. Examination showed that the fractures mentioned had united with no appreciable deformity. The patient came for treatment of a suprapubic sinus which persistently discharged urine.

The patient's general condition was poor, he was much emaciated, weak, and had the appearance of being very ill. On examination the heart and lungs seemed normal. The right leg had been amputated below the knee several years before. There was leakage of

urine from a thick fistulous tract in the scar of a previous suprapubic incision. The greatest amount of leakage occurred during micturition. He was able to expel only about one-third of the total amount of urine present. He had suffered continuously from severe pain, and three-fourths to one grain of morphine had been administered during each twenty-four hours to afford relief.

Our first attempts to introduce a sound through the urethra into the vesical cavity were unsuccessful. A small rubber catheter emerged from the fistulous opening in the suprapubic region. In a later attempt the catheter apparently entered the cavity of the viscus, and was allowed to remain in situ for ten days, when it was extruded. Under vesical irrigations the general condition of the patient improved, and we were hopeful the fistula would close. Later, however, it was impossible to enter the vesical cavity with either catheter or sound, and, as little progress was being made, it was decided to perform suprapubic cystotomy.

Operation, December 1st, 1928: The vesical cavity contained numerous calculi which were removed. A catheter introduced through the urethra emerged from the suprapubic incision anterior to the urinary bladder just beneath the pubic bone. A small quantity of pus was expressed from this tract.

Examination showed that evidently, at the time of the first suprapubic operation (in Virginia), the introduction of a sound through the urethra had made a false passage into the vesical cavity. This opening was about one inch above the normal urethro-vesical orifice or the vesical neck. A sound readily entered this fistulous tract. The opening in the vesical wall was surrounded by dense scar tissue, and only the tip of the sound entered the cavity. Unquestionably it was through this fistula that the patient had been expelling urine. It was impossible to introduce a sound into the vesical cavity through the normal channel. Accordingly, the perineum was incised and the scar tissue divided through into a pus cavity surrounding the posterior urethra. A sound was introduced through the urinary bladder until the tract was well established, then a large catheter (No. 30) was inserted into the vesical cavity through the normal channel. Both incisions were closed partially, a retention tube being left in the suprapubic wound, the large catheter (No. 30) in the urethra.

Immediate postoperative course: The patient had considerable pain and fever for a few days. There was some disintegration and sloughing of the suprapubic wound, and slight drainage of pus from the perineal incision. At the end of the tenth postoperative

\*Read before the Louisville Medico-Chirurgical Society, March 27, 1931.



day his condition was much improved and his temperature normal.

Following operation for the suprapubic sinus, which had resulted from the urethral rupture, and for which several operations had been performed prior to admission to the Jewish Hospital, the patient progressed fairly well until two months ago. All sinuses had closed. The urethral catheter was allowed to remain in situ for two and a half months, during which time daily vesical irrigations were given. At the end of one and a half months, an abscess developed, just distal to the penoscrotal angle. This was incised, following which there was some leakage of urine from the opening during micturition. Otherwise all sinuses remained closed, and a No. 25 steel sound could be passed easily, without pain or bleeding, thus showing that complete restoration of the damaged urethra and its mucosa had occurred. Dilatation was practiced at weekly intervals. Urination was normal, retention good, and vesical capacity ample.

May 15th, 1929: For the past two months the patient has had intermittent fever (with almost continuous pain over the region of the right kidney and ureter. During this period there were expelled per urethram several calculi, which, judging from their size, shape, and the symptom-complex were evidently from the ureter.

On April 29th, 1929, roentgen-ray examination showed the right kidney enlarged and there were numerous shadows in the kidney and ureter,—evidently pyonephrosis with calculi. The condition of the patient was fairly good and he was prepared for right nephrectomy.

Operation, May 15th, 1929: Under nitrous oxide gas, with some ether, an incision was made over the right kidney area, extending from junction of the spine and last rib downward and around the iliac crest. The kidney was exposed and a large perinephritic abscess opened. It contained about one-half pint of foul-smelling pus. The kidney was densely adherent and three times the normal in size. It presented many necrotic cavities filled with pus around the entire kidney and also contained numerous calculi. The kidney was stripped of its capsule and freed with great difficulty. This maneuver caused only moderate venous bleeding. The kidney was freed sufficiently to allow application of two clamps to the pedicle and was then removed. The stump of the pedicle was quite short, but was ligated with two transfixing sutures of No. 2 chromic catgut. All hemorrhage was controlled and the wound closed leaving a cigarette drain in the lower angle.

The patient left the operating table in considerable shock, and for forty-eight hours his

condition was very grave; he was practically pulseless. A transfusion of 500 c. c. citrated blood was given on the second postoperative day without reaction, and was followed by much improvement in his condition. At the end of twenty-four hours he developed hiccough which persisted for nine days with only an occasional remission. This finally ceased and he then vomited for forty-eight hours. He was given 50 c. c. of 50 per cent glucose solution intravenously twice daily and the stomach thus placed at rest. Following this the nausea and vomiting ceased and he improved rapidly. The cigarette drain was removed on the third day. The wound continued to discharge, and during the next few days quite a number of calculi were extruded.

The patient was dismissed from the hospital well on July 8th, 1929. The administration of morphine was discontinued two days after admission.

#### COMMENTS

The foregoing report shows definitely that restoration of the urethra followed the use of an indwelling tube introduced through the urethra into the vesica urinaria. There was not only restoration of the urethra, but evidently the mucosa also reformed to line the canal. This is shown by the fact that now, more than one year after the patient was dismissed from the hospital, a No. 28 steel sound can be passed without difficulty and the introduction is unaccompanied by pain or bleeding. The procedure described was employed in the other two cases of ruptured urethra mentioned with equally satisfactory results.

Patients seen early, that is immediately after the injury, could also be treated by the method outlined with as good if not better results. However, I have had no experience with primary treatment, as all three patients had been operated on elsewhere before coming under my observation.

Extreme care should be exercised at the time of operation to be certain that the urethral tube enters through the vesical neck. This can only be assured by suprapubic cystotomy and passage of an instrument from within the vesical cavity into the perineal space and engaging the tube previously inserted through the penis.

As to the length of time the urethral tube should be allowed to remain in situ, I am unable to definitely state. In the three cases treated it was left in from ten to twelve weeks. This period could perhaps be shortened.

It has seemed advisable to place a tube in the vesical cavity suprapubically. In the cases treated this tube was removed in from two to three weeks, depending upon the con-

dition of the patient. The suprapubic tube is joined by silk thread to the urethral catheter. When the suprapubic tube is removed, the silk thread is brought outward through the suprapubic incision and anchored externally. Experience has taught that the urethral tube will be extruded if not thus secured. Daily vesical lavage should be practiced so long as the urethral tube remains in position.

Following dismissal of the patient from the hospital, it would seem that, at least at monthly intervals, the passage of a sound is advisable over a period of several months. In one of my cases, the patient failed to return for dilatation. Urethral stricture occurred subsequently with urinary retention. He then appeared with advanced uremia and died before anything could be attempted.

### DISCUSSION

**J. Garland Sherrill:** I wish to congratulate Dr. Grigsby on his successful handling of the complicated case he has reported. These cases are dangerous, and more especially are they dangerous when rupture of the urethra occurs with considerable leakage of urine which is very destructive to the tissues and unless drainage is free the patient is not likely to recover.

I have never found it necessary to perform suprapubic cystotomy in the treatment of any of these cases. It is interesting to know how long a catheter may be left in the urinary bladder. A posterior urethrotomy, the Cocke operation, without a guide, makes an opening into the vesical cavity and drains through the perineum and is the most satisfactory method of treatment. Drainage is free and the trouble of suprapubic operation is avoided.

The result in Dr. Grigsby's case shows what can sometimes be accomplished by persistence and good surgical judgment. The patient is to be congratulated for discontinuing morphine and for the great courage and stamina exhibited.

**Guy P. Grigsby,** (in closing): The result in this case was very satisfactory from every angle. When the patient was admitted my first impression was that nothing could be done for him, but he was informed if he would discontinue morphine we would endeavor to help him. No morphine was administered after the second day in the hospital. The facts recited in my paper give an idea of the trials and tribulations the patient endured. His grim determination to live was one of the most important factors in his recovery. He had uremia on several occasions.

The most remarkable feature to me is that the patient recovered. He was in the office two weeks ago at which time a No. 29 sound was passed without the least trouble. Apparently there has been complete restoration of the

urethra and its mucosa. At no point is there any evidence of stricture

### MISCARRIAGES\*

WM. T. McCONNELL, M. D.

Louisville.

A miscarriage, considered from a medical standpoint, includes all premature emptying of the contents of the pregnant uterus from the time of conception to viability. The terms abortion and miscarriage, in a scientific sense, are synonymous, and will be used in this discussion interchangeably. Before entering upon the matter of diagnosis and treatment, it might be well to consider the underlying principles that bring about miscarriage. These factors may be grouped under four general heads as follows: First, abnormalities; second, infections; third, trauma and fourth, toxins.

Abortions in the early months of pregnancy are practically always preceded by the death of the fetus, so that the consideration of this type resolves itself into the discussion of those factors which produce fetal death. In the later months of pregnancy, however, the fetus is often born alive and other causes must be taken into consideration. In many cases there is a combination of circumstances entering into the production of abortion so that more than one of the above named factors play a part.

One of the most usual causes of death of the fetus, is abnormality in fetal development. These abnormalities would, if pregnancy persisted, produce monstrosities; fortunately most of these terminate in early abortion. There seems to be no adequate explanation of such condition.

A second form of abnormality is found in the appendages of the fetus such as torsion of the cord, hydramnios, hydatiform or blood moles. Other conditions in this same group are hypertrophic endometritis, abnormalities of the placenta, such as infarcts, hemorrhagic areas of the placenta or the decidua, or atrophic changes of these organs. In these conditions the nutrition of the embryo is interfered with to such an extent that it perishes from lack of oxidation or nutrition.

Placenta previa, premature separation, marginal implantation of the cord are all formidable factors in abortions. These abnormalities usually produce their evil effects in the latter months of pregnancy.

Abnormalities of the uterus are also factors which play an important role. Among these

\*Read before the Jefferson County Medical Society, February 16, 1931.



may be mentioned the undeveloped uterus, fibroids, uterine displacements and hypersensitiveness of the uterus. In the undeveloped uterus, pregnancy rarely takes place, but when it does, the normal uterine hypertrophy is not sufficiently rapid to nourish the fetus and intra-uterine death occurs. Fibroids do not as a rule impair or endanger pregnancy unless by their situation or abnormality of size they rob the placenta of its needed amount of oxygen and nourishment, or unless their location is such that a mechanical interference to fetal development ensues. Uterine displacements usually produce abortion by causing a poverty of nourishment to the fetus due to interference in the uterine circulation produced by the displacement. In some cases, however, where the uterus is firmly adherent in a retroversion the abortion is produced by more mechanical means.

Some uteri that are apparently otherwise normal are found to be hypersensitive to external stimulation; such a uterus is probably faulty from a developmental standpoint. This condition may be produced by disease of the cervix, endometrium or myometrium, but is sometimes encountered in patients where no such diseased condition can be demonstrated. In a hypersensitiveness, due to disease, the patient usually aborts about the same time in each succeeding gestation, but in the type of hypersensitiveness that is not accompanied nor caused by disease, a patient may carry several succeeding pregnancies, each one somewhat longer, until finally a living child is the result.

Among the factors causing abortion, infections probably play the greatest role. They may be divided into acute and chronic conditions. In the acute infections may be named typhoid fever, pneumonia and other diseases of this type. The production of abortion in these cases is probably due to the toxin produced by the disease acting upon the fetus in such a way as to cause its death and might be considered under the heading of toxins. In the chronic type of infections, syphilis, nephritis, myocarditis, endometritis and cervicitis are the most frequent causative factors. In syphilis abortion is usually late in pregnancy and is caused by the hypertrophic condition of the placental blood vessels and intravillous spaces, and a resultant diminution in the nourishment of the fetus. In nephritis, the toxins of the body are the most likely elements of disturbance. In myocarditis improper oxidation of the blood, together with toxins, would account for the abortion. Endometritis may be acute or chronic, the acute type usually being encountered in criminal abortions and the chronic type often having

for its ground-work a pre-existing Neisserian infection. The decidua in these cases becomes engorged and hemorrhagic and not only is the nourishment of the fetus impaired but also the toxins produced by this condition militate against its existence.

The writer has seen a considerable number of cases in the last few years where endocervitis was the only abnormal condition discovered in a case of miscarriage. This condition is often associated with endometritis, but very frequently we have found either the uterus was free from infection or the cervix was the chief offender.

At the present time we are watching with a great deal of interest the effects of infection due to the bacillus melitensis, or the organism causing Malta fever. It is well known that in the porcine and bovine types, abortion is the most outstanding characteristic in animals, but in the human there are not enough data as yet upon which to draw conclusions. Some cases in which the patient was suffering from this disease have terminated in abortion, but whether or not the specific organism was entirely responsible has not been determined.

As to trauma, the normal pregnant uterus will withstand considerable shock without apparent detriment to the fetus, but where there is a hypersensitiveness such things as jolts, falls or sudden exertion are often sufficient to bring about premature emptying of the uterus. In some cases the hypersensitiveness is so great that digital examination or coitus is sufficient to produce abortion. In other instances it seems almost impossible to produce abortion by trauma. Many cases go on to full term even after dilatation of the cervix and the insertion of foreign substances.

Toxins play a minor role in abortion aside from those encountered in acute or chronic infections. Such agents as lead, gas and similar poisonous materials are sometimes sufficient to terminate pregnancy.

Under the head of toxins might be mentioned endocrine disturbances. Certain individuals are afflicted with the hyper or hyposecretion of some particular ductless gland. These disturbances, when sufficiently marked to interfere with pregnancy, usually prevent conception. At times, however, the endocrine dysfunction seems to be aggravated by the occurrence of pregnancy, and abortion follows. In the thyroid disturbances the production of an excess of thyroxin usually prevents pregnancy, but if this hypersecretion occurs after conception has become established, it may result in premature termination of pregnancy. This is also true of hypersecretion of the pituitary gland. The dysfunction of the secretion of the ovaries and especially of the corpus luteum more fre-

quently results in metabolic upsets than in abortion. The interdependence of endocrine functions render it particularly difficult to determine which gland is at fault primarily.

From a clinical standpoint miscarriages may be classified as spontaneous or induced. Those that are induced may be therapeutic or criminal. From the standpoint of treatment they may be threatened, inevitable, incomplete or complete.

As to diagnosis of a threatened miscarriage, the factors that would lead us to suspect the likelihood of abortion are: first, bleeding; second, cramps. Many patients bleed at irregular intervals during pregnancy but carry the fetus to term. But bleeding in the early months of pregnancy is always a rather serious complication and should put us on our guard. Especially is this true when it is associated with cramps. The character of bleeding may or may not be of help in determining whether or not miscarriage is threatened. If the fetus has died there is usually a discharge of dark brown or grumous material, having considerable odor and persistence. This may go on for many days before the uterus empties itself. The cervix in this condition is usually not dilated, neither has it become shortened.

In the inevitable type of abortion the cervix becomes somewhat dilated and shortened and the bleeding is usually more severe and practically always accompanied by cramps.

In an incomplete abortion the fetus is usually passed and a part or all of the placental tissue still remaining within the uterus. If it is known that the fetus has been discharged and bleeding is profuse, if cramps persist or if placental tissue can be felt in or through the cervix, then the abortion is referred to as incomplete.

A complete abortion is where all of the products of conception, with the exception of the decidua are expelled. When the abortion is complete, cramping is practically always discontinued, the bleeding is not profuse and the cervix has regained its tone. Before discussing the active treatment of miscarriage it would probably not be amiss to consider prophylaxis.

The prevention of abortion resolves itself into discovering the etiological factors concerned and correcting them. In the acute infections the principal measures should be directed toward relieving the general condition. In chronic infections our greatest hope lies in preventing subsequent abortions. In syphilis it has been clearly demonstrated that adequate treatment, including the arsenicals, gives very happy results, especially if administered early in pregnancy. In myocarditis a strengthening of the heart

muscle by appropriate remedies and adequate rest produce good results. In chronic endometritis a curettage may be of great value; in cervicitis and endocervicitis the active treatment of infections of the cervix by electro-cautery or by other form of surgery is indicated. Foci of infection in the tubes should be eliminated, as should any other more remote chronic disease. Where some abnormality exists which is remediable, the procedure is obvious. The removal of fibroids, the replacing of retroversions, the correcting of prolapses, etc., can be done in the interval between pregnancies.

The hypersensitive uterus can best be dealt with by removing all sources of irritation. The avoidance of all unnecessary exertion, rest in bed, sedatives and a close watch for signs of threatening abortion, will often meet with a successful termination.

When abortion is due to endocrine disorder, in which some one gland is definitely and clearly at fault, benefit may be obtained from ductless gland therapy; unless, however, the condition is clear-cut, much harm may be done by experimenting with these powerful agents. The treatment of such conditions is as yet in a more or less experimental stage and no definite rule can be laid down for its application.

In the treatment of threatened miscarriage, the patient should be kept in bed, the foot of the bed elevated, all disturbing conditions should be removed, opiates and sedatives should be freely employed. Some writers advise the use of adrenalin because of its relaxing influence upon the uterus. The writer has had no experience with this agent in threatened miscarriage and cannot state personally as to its value. The patient should be watched carefully for signs of hemorrhage and for systemic complications. If the bleeding becomes very profuse, interference may be necessary, although according to the accepted standards the miscarriage may merely be threatened.

As a general rule, the same line of treatment will apply to cases of inevitable abortion, unless hemorrhage becomes severe, or unless fever is present. If there is any reason to hasten the termination of the condition pituitrin given in 0.5 cc doses at half hour intervals for six doses, followed by fluid extract of ergot every four hours, will usually be sufficient to complete the process. At any rate, the patient should be treated expectantly, unless severe bleeding or the general condition of the patient would make interference necessary.

Our greatest problems in the treatment of miscarriages are naturally encountered in those that are incomplete. Methods of handling these cases range all the way from



curettage of all cases to strict non-interference, no matter what happens. The writer has known men who would curet the uterus in every miscarriage case, whether the abortion was inevitable, incomplete or complete regardless of attending circumstances. This practice is mentioned only to be condemned.

In outlining any course of treatment for incomplete abortion, the procedure must be a contingent one. My discussion, therefore, will be a recital of what appeals to me to be the most sensible course in the various complications usually encountered.

It is gratifying to observe that the general trend is toward conservatism. The profession seems to be coming to a realization that ill-advised radicalism is too frequently fraught with dire results.

In this connection we would like to submit the general plan of treatment of the department of gynecology of the City Hospital as corresponding in the main with the writer's views. The following outline was taken from a report from that department, read before the Louisville Obstetrical and Gynecological Society by Dr. W. O. Johnson:

"After the patient enters the hospital energetic systemic treatment is instituted at once in the form of absolute rest, fresh air, forced feeding of a high caloric, low residue diet; the fluid intake is kept to 2000 c. c. a day, or hypodermoclysis may be resorted to and blood transfusion is given without hesitation if desiccation or anemia is present.

"The initial examination is made very cautiously and if there is definite evidence of complication outside of the uterus, even so slight an indication of abdominal tenderness, strict conservatism is observed, and the following treatment is directed towards the resulting complications and not abortion.

"If upon speculum examination, under sterile precautions, we see remnants protruding from the dilated cervical os, they are gently removed with placental forceps. The cases are started on  $\frac{1}{2}$  c. c. of pituitrin q.  $\frac{1}{2}$  hour for six doses and at the completion of this course 1 dr. of flx. ergot is given q. 4 hours. Under this regime a severe hemorrhage very seldom occurs, and it is rarely necessary to pack the vagina. In fact, the vagina is never packed except in rare and extreme cases of profuse bleeding, and this only long enough to tide over an acute emergency until the pituitrin and ergot have acted. Even if the bleeding continues and the membranes are not completely expelled, a dilatation and evacuation is not considered until the temperature has been normal for three days, and then under the most rigid aseptic operative technique. Hegar dilators are used to dilate the cervix, and, with an

iodine sponge wrapped on dressing forceps, the uterine cavity is swabbed out. With sterile gloved finger the uterine cavity can usually be examined with ease to detect any remnant of tissue. Forceful dilatation and rough handling with hands is contra-indicated. After dilatation and evacuation the uterus is kept in contraction by ergot, and the iodine sponge is left in the cervix for twenty-four hours."

The writer has encountered a number of cases where the retained placental tissue was very adherent to the uterine wall. In these cases the sharp curette has seemed to us to be the best instrument to use. Great care must be employed, or much harm may be done. Gentleness of manipulation is absolutely necessary, or the uterine wall may be perforated. After the completion of the operation, the uterine cavity is packed snugly with a narrow strip of iodoform gauze, and the vagina is packed loosely with a 2 inch sterile gauze strip.

Conservative treatment in the presence of infection should be strongly emphasized. Very rarely indeed would curettage be justifiable in this condition. One can conceive, however, of a condition where the removal of necrotic, infected material from the uterus might be of value in shortening a febrile period. Usually, however, such a procedure tends to convert a local disturbance into a generalized sepsis. Where considerable blood has been lost, it is very important to build up the general condition with such things as intravenous saline, glucose, transfusion, and other supportive measures.

In the aforementioned report by Dr. Johnson, he reviews 288 cases of incomplete abortion on the City Hospital service, treated by the routine as outlined.

There was not a death from dilatation and curettage, and only in 10% of all these cases was this curettage necessary. There were three deaths in this series or a mortality of 1.4%. Two deaths occurred from septicemia, and one patient entering the hospital almost moribund, died from hemorrhage. Of the 288 patients, 63 gave a history of inducing the abortion and 25 more admitted operations by criminal abortionists. The other causes given were as follows: Fall, jar or other strain, 46; medicines, 29; catheter, 23; malposition, 23; unknown, 96. There is no way of determining the exact number of criminal abortions in any series reported because the history is not always reliable. Even with the facts that were ascertained the mortality rate was exceptionally low, which is an eloquent argument in favor of conservative treatment.

The ratio of miscarriages to viable births is given by various authors as anywhere from 1 in 3 to 1 in 5. These estimates are prob-

ably very conservative. Many states have no law requiring the reporting of these cases, so no definite data are possible. Ignoring those intentionally induced, the number is still of sufficient magnitude to constitute a medical and social problem. The social integrity of a race depends largely upon its reproductive-ness. Every miscarriage militates to weaken this integrity.

From a medical standpoint, every uninduced abortion signifies some physical weakness or pathology, and our responsibility as physicians does not end with the termination of the miscarriage. These cases should, on the contrary, afford us opportunity for investigation of the general condition of the patient and the discovery and correction of defects which otherwise would remain unrecognized.

One of the worst blots upon our modern civilization is the criminal abortionist. Until the medical profession finds some effective means of ridding itself of this baneful member, it must bear the stigma or its share of responsibility for the perpetuation of the evil.

When a man takes another human life in the heat of anger, or in self-defense, or for the protection of others, it is, to say the least, a deplorable occurrence. But we might find grounds for condonement. The highwayman who kills for gain is condemned by society as one who has forfeited his right to live. But even he operates against those who have some powers of self-defense.

But the criminal abortionist, for the proverbial thirty pieces of silver—or less—will destroy a human life which is utterly defenseless, against whom there could be no plea of heated passion, no basis for self-defense—a life that cannot even raise the cry of the new born infant in its own defense. Nor is this all. The yearly toll of mother's lives taken by these doctors of medicine is a matter of no small moment. And these men hide behind the cloak of membership in the honored and sacred medical profession.

Why are these malefactors so seldom brought to justice? Why is it so difficult to secure a conviction when one of them is indicted? Why are so few of them deprived of the license to practice medicine? It seems to us that there is a work for us to do—a task that is not being done as it might be. It could not be said of us that we are not worthy as an organized body, to cast the first stone.

The women who patronize these men are not without blame, and yet their offense is far less culpable. In the early weeks of pregnancy the woman is often the victim of a mental depression. She lives under a cloud, of fear and dread that amounts in many cases

to a psychosis. If she can be safely carried past this state by the wise and kindly physician, he will later have her undying gratitude. Here again we can do much toward mitigating this evil. The laity should be better informed as to the dangers of such a procedure as well as the moral phase. It is our office to give this information.

One of the most disagreeable tasks of the conscientious doctor is to care for these patients after the abortionist has done his work. He must assume an unfair responsibility. When it can be ascertained that the abortion has been illegally induced, it is the attending physician's duty to himself to acquaint the patient and other responsible members of the family of the danger and eventualities in the case, and let it be definitely understood where his responsibility ends.

In conclusion, the whole subject of miscarriage and abortion is one which greatly concerns us as a profession. No phase of our work partakes more fully of the medical, moral and social.

It is our responsibility primarily to give immediate care to those who place themselves in our hands, and to treat with conservative thoroughness the problem at hand. Then the more remote factors which brought about the condition deserve our most careful consideration, with the end in view that each patient may be returned to normal health.

Finally, our obligation reaches to the correction, as far as may lay in our power, of the moral and social evils following in the wake of criminal procedures.

### DISCUSSION

**Edward Speidel:** The essayist has covered the subject of etiology very thoroughly. It is interesting to understand that in syphilis the death is not due to the effect of the syphilis on the fetus, but to the destructive changes in the placenta. There is an edema, many of the blood vessels are thrombosed, and others are squeezed out of existence by the fibrous tissue developing in the inter-villous spaces.

As to treatment, a differentiation must be made as to early and late miscarriage, and whether the patient must be treated in the home or in a hospital. Death nearly always results from infection, rarely from hemorrhage, and so given a clean case every precaution should be taken to keep it free from infection. It is on this account that the late John B. Murphy warned us never to make a vaginal examination in a case of abortion.

It stands to reason that if the condition can be controlled by resort to pituitrin and ergot, then those measures should be used. When active measures are necessary, then they should only be used if the patient is afebrile and in a well-equipped hospital. In the first two and a



half months the ovum is expelled and more or less of the thickened decidua remains. All text books tell you to remove this by inserting the finger. I have rarely found a uterus of that period of gestation where the internal os would be sufficiently dilatable to permit such manipulations, especially in primipara in whom so many of these early interruptions occur.

In later miscarriages where placental formation has taken place, the fingers should always be inserted after curettage, because the curette will often slide over such placental masses without dislodging them.

**W. O. Johnson:** Doctor McConnell has covered the subject of "Miscarriages" so well that there can be little added. Some of the points brought out should be emphasized.

The bimanual examination is not indicated on a patient with an incomplete or threatened abortion. Under aseptic precautions a sterile speculum can be introduced into the vagina and the degree of cervical dilatation can be determined. If protruding membranes are present, they may be gently removed with placental forceps. Further examination is then unnecessary. In this manner, 90% of these cases can be treated, and at all times conservatism is advocated.

Miscarriages may be grouped into three classes:

(1) Defective germ plasm; 70% are due to improper fetal, or placental development.

(2) Defective implantation of placenta, result of inflammation, traumas, circulatory changes and malpositions.

(3) Maternal or paternal disorders, as endocrinopathies, exhaustion states and prolonged illnesses.

Occasional miscarriage may occur in apparently healthy individuals, especially at the first pregnancy, without a known cause. After studying the products of conception in the early miscarriages we find that 70% of them are due to defective germ plasm denoted by hydatiform degeneration of the chronic villi or evidence of maceration of the fetus before the miscarriage occurs.

The great number of miscarriages attributed to traumatic influence, such as "lifting a tub," are only coincidences, and are really the results of defective fetal development or implantations. However, when trauma is of such severity as to rupture the membranes, this may then be a direct cause of miscarriage.

Endometrial infections from previous induced miscarriages or pelvic inflammatory disease are the cause of a far greater number of miscarriages than the ones produced by circulatory changes as a result of malposition of uterus.

The most interesting and perplexing study as to the cause of miscarriage is from the parental

side. By careful endocrinological and physical study of parents and also their products of conception, we can build up a more accurate method of treating such a large group of people, before the products of conception miscarry, thereby lower the rate, insure success of the pregnancy and healthier offsprings, and prevent the far reaching complications that are sequelae of miscarriage.

I certainly appreciate the privilege of hearing Doctor McConnell's paper.

**George A. Hendon:** Viewing this situation, from a surgical standpoint, it seems to me the problem on which we would like to have some light in connection with abortion is what are we to do in cases where infection has already occurred? A woman is admitted to hospital with a history of abortion, the history may indicate a complete abortion of which we are not certain; she has had chills, fever of 104° to 105° F., and rapid pulse rate. What are we to do under such circumstances? We have tried both methods generally recommended. We have invaded the uterus and removed the debris, and the patient died. We have used conservative treatment with the expectation or hope the uterus would clear itself, and the patient died. The important question, therefore, is: what are we to do? We have heard the advocates of both methods of treatment discuss this question, but they both studiously avoid making any reliable statements, so that obviously it is still a matter for investigation. It seems to me that the situation requires some intensive study. We know that we have to meet the situation as it presents, that there is absorption of poisons with necrosis of tissue. If we gently introduce a gloved or gauze-wrapped finger into the uterus, or whatever other method we may choose to adopt, we know that we separate the diseased tissues and expose large fresh surfaces over a wide area for continued absorption of poisons already present, and the patient dies. It seems to me it is a question whether we should let the patient die of her own secretion, or promote death by exposing fresh areas of absorption. The truth lies somewhere between these two opinions. This is a mere suggestion, but it might be that the method of choice in dealing with these cases lies in an effort to sterilize the contents of the uterus—without removing them—by the introduction of some antiseptic that will not harm the individual but will control the poisons in the uterus. I have not sufficient knowledge of the subject to say whether there is really anything of value in this suggestion. We know that the other two methods are almost always followed by fatality, and an effort to sterilize the contents of the uterus might be the solution of this problem. I believe the suggestion is worthy of serious consideration, and if the method proves successful

we will have made some progress in the treatment of abortion cases.

Wm. T. McConnell, (in closing): I wish to thank the gentlemen for their discussion. Speaking of one of the points mentioned by Dr. Hendon, i. e., whether we should or should not invade the uterus in cases of abortion. There are several factors which help us to determine what should be done. In the first place, patients such as described by Dr. Hendon have practically always been the victims of criminal abortionists, and some of them will die no matter what we do. Moreover, a patient in the condition the doctor has described has septicemia; it is no longer a local affair, the infection has already become generalized and reached the blood stream. In cases of that type I do not consider curettage is indicated; it is better to treat the septicemia. Personally, however, I can conceive there might be cases where removal of infected and necrotic material from the uterus might be advisable in the absence of frank septicemia. On the other hand, the danger here, as stated in my paper, is converting a local condition into one that is general. Where the condition can be controlled by the administration of pituitrin and ergot, curettage is seldom necessary or even advisable. My opinion is that more conservative treatment and less curettage should be practiced in infected uteri. Infected cases do not, as a rule, have hemorrhage. In non-infected cases with hemorrhage curettage is indicated, but not in infected cases. In the latter it is better to await developments.

**Still's Disease and Chronic Polyarthrits in Children.**—Gentili, after general remarks on chronic polyarthrits in children, which still constitutes, he admits, an obscure chapter in infantile diseases, describes four cases of Still's disease. This is a peculiar type of chronic polyarthrits in children, especially rare in his region, which is always accompanied by enlargement of the spleen, a generalized hypertrophy of the lymph nodes and often hepatomegaly. All these symptoms were evident in the four children under discussion. In regard to autonomy of this disease type, which is often discussed, he holds that Still's disease, from the nature of its peculiar clinical character, should be differentiated from the ordinary picture of chronic infantile polyarthrits.

## WOMAN'S AUXILIARY NEW RADIO PROGRAM

The Radio Committee of the Woman's Auxiliary to the Kentucky State Medical Association wishes to announce that through the courtesy of stations WFIW at Hopkinsville, WPAD at Paducah and WCKY at Covington, they will broadcast health talks each fourth Thursday of the month beginning May 28th.

We feel that this is quite an achievement. We now have four stations which put on our health talks.

WLAP at Louisville gives us ten minutes for the Jefferson County Auxiliary every Thursday at 11 a. m. We hope in the near future to have these talks on all stations in Kentucky.

Every Auxiliary member is cordially invited to ask her friends to share the benefits of these programs.

### THE RADIO COMMITTEE

Mrs. H. A. Herzer,  
Mrs. W. Emrich,  
Mrs. W. A. Onderdonk,  
Chairman.

### JANE TODD CRAWFORD SILVER TEA

On May 18, 1931, the Jefferson County Medical Auxiliary gave a Jane Todd Crawford Silver Tea at Argyle, the country home of Dr. and Mrs. G. A. Hendon. The tea was well attended by the Auxiliary members and their friends.

On this occasion Mrs. A. T. McCormack told the story of Jane Todd Crawford's trip from her home in Green County to Dr. Ephriam McDowell's office in Danville, where she submitted to an operation for removal of an ovarian tumor. This marked the beginning of abdominal surgery.

Our women are interested in the memorial project, and we are gradually getting the story told before other women's organizations. The story was told by Mrs. R. L. Durham before the Federation of Women's Clubs at Frankfort. It has also been presented before the Business and Professional Women's Club of the State.

The Committee is hoping that other organizations will allow us to put on Jane Todd Crawford programs.

The contest closes in September, and we hope all County Auxiliaries will have good reports on Jane Todd Crawford programs and donations.

### NEWS ITEMS

Dr. Will R. Pryor announces the removal of his office to 1120 Heyburn Building, Louisville, Kentucky, June 1, 1931. Eye, Ear, Nose and Throat. Hours: 9:00 to 1:00; 2:00 to 4:00. Tuesday and Thursday 9:00 to 1:00.



# Kentucky Medical Journal

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NEXT MEETING LEXINGTON, SEPTEMBER 7-10.

## COUNTY SOCIETY REPORTS

**Clark:** At a special meeting of the Clark County Medical Society, held at Winchester, on Friday, May 22, 1931, for the purpose of taking suitable action upon the death of Dr. Joseph Addison Stucky, one of Kentucky's most widely known and distinguished physicians, after feeling tributes had been paid to the character and memory of Doctor Stucky, the following resolutions were offered by Dr. George F. Doyle, the Secretary, and they were unanimously adopted:

WHEREAS, The Grand Physician of the Universe, in His Inscrutable Wisdom, has called from his earthly labors to a home in the Eternal Hospital on High, our distinguished brother, Dr. Joseph Addison Stucky, of Lexington, Kentucky, who for more than half a century has labored unceasingly in the cause of humanity and for the betterment of the medical profession, and while bowing in humble submission to the Divine Will, the Clark County Medical Society cannot refrain from giving expression to our grief for his loss and to our estimate of his distinguished ability, and, therefore, be it

RESOLVED, that in the death of Dr. Stucky not only Kentucky, but the entire United States, shares in the sorrow of his family and friends, and bears loving witness to his nationwide reputation and ability, which will cause him to be mourned in all the States of the Union and carve his name in a high place among the immortals of the profession he so loved, adorned and honored, and we have an abiding faith that history will accord him in its loftiest annals a place worthy of the great esteem in which he was held by all who knew him, and be it further

RESOLVED, that these resolutions be spread upon the minutes of the Society, a copy sent to the family of our deceased brother, and a copy sent to the Kentucky Medical Journal for publication.

GEORGE F. DOYLE, Secretary.

**Fleming:** The Fleming County Medical Society met in the office of Garr & Garr, May 13, 1931 at 2 P. M. Members present, Drs. C. L. Garr, W. A. Graham, J. H. Kelly, Charles W. Aitkin, C. R. Garr and J. B. O'Bannon. A. S. Robertson, President, in the Chair. Minutes of meeting second Wednesday in March, were read and approved. No communications, no applications for membership, and no new business.

Case reports. Dr. Charles Aitkin reported a case of Appendicitis in a woman 74 years old. Had a second attack in six weeks. Recovered without operation. Discussion was led by Dr. W. A. Graham. Dr. C. L. Garr reported a case of Appendicitis, the diagnosis was doubtful at first on account of having a history of

eating a quantity of beans; but operation confirmed his diagnosis of an appendicitis. Dr. J. P. Huff reported a case of Appendectomy with a baby's tooth in the appendix. This brought about a general discussion of foreign bodies in the appendix. Dr. Graham reported a case of Central Pneumonia in a boy, seven years of age the symptoms of which were masked, but were cleared up by an x-ray. The discussion was opened by C. L. Garr. No further business to come before the society. Adjourned.

J. B. O'BANNON, Secretary.

**Bourbon:** The Bourbon County Medical Society held its regular meeting on Thursday evening, May 21, 1931, in the county court room of the court house.

Dr. Pittinger was elected a member of the Society.

Dr. C. G. Daugherty made a similiar motion committee be appointed to draw up resolutions of regret on the death of Dr. Stucky to be transmitted to the bereaved family. Seconded and passed. The committee was named as Drs. Daugherty, Ussery and Stern.

Dr. C. G. Daugherty made a similiar motion that a committee be appointed to draw up resolutions of regret on the death of Dr. Stewart of Georgetown. Seconded and passed. Same committee named.

Members present: Drs. J. A. Orr, H. M. Boxley, G. C. Rankin, J. T. Van Zant, L. Oberdorfer, J. D. Calhoun, C. G. Daugherty, J. D. Hart and the Secretary.

Visitors: Dr. C. C. Fihe, Cincinnati, O; Drs. Isaac Brown, Russell Henry, George Doyle, O. B. Clark, Winchester; E. S. Maxwell, D. B. Harding, S. E. Wyatt, J. A. Stoeckinger, Lexington; W. B. Moore, H. E. Blount, Marshall McDowell, S. Rees and J. M. Wyles, Cynthiana.

Dr. C. C. Fihe, Cincinnati, Ohio, read a paper on "Ulcer and Cancer of the Stomach and Duodenum from a Medical Standpoint"

The discussion was opened by Dr. Wyatt. Dr. Harding discussed the paper from the Roentgenologist's standpoint followed by Dr. Stoeckinger, who spoke on the Surgical Aspect and by Dr. Maxwell, pathologist, followed by Dr. Rees, Dr. Daugherty, Dr. Brown and Dr. Orr. Closed by Dr. Fihe.

Meeting adjourned.

M. J. STERN, Secretary.

**Fifth District:** At a meeting of the following physicians of Jefferson, Carroll, Trimble, Gallatin, Owen and Henry Counties held at Warsaw on May 14, 1931, the Fifth District Medical Society was organized.

Drs. W. E. Gardner, C. W. Dowden and A. T. McCormack of Jefferson County; J. W. McMahan of Trimble; B. L. Holmes, J. M. Ryan and J. S. Brown of Carroll; J. M. Stallard, J. A. Tyson, E. C. Threlkeld and J. W. Shupert of

Gallatin; K. S. McBee, J. W. Botts and George Purdy of Owen; A. P. Dowden, M. Bell, E. E. Bickers, O. B. Humston, W. W. Leslie, W. F. Asbury, Webb. Suter and Owen Carroll of Henry County.

The Society selected Carrollton as the regular meeting place and decided to hold two regular meetings each year, one in the Spring and one in the Fall, also making a rule that each physician shall pay for his dinner at these regular meetings and that no member shall be allowed to entertain the Society to dinner on its regular meeting day.

Dr. Shupert of Warsaw entertained the physicians at this meeting to a most delicious dinner and every physician took a very active part in this part of the program and expressed their appreciation by a rising vote of thanks. Visiting physicians present were: Dr. J. W. Northcutt, of Covington and Dr. W. R. Houston of Patriot, Indiana.

The following officers were elected: B. L. Holmes, Carrollton, President; George Purdy, Owenton, Vice-President; Owen Carroll, New Castle; Secretary.

After organization, a paper on Diseases of the Gall Bladder was read by C. W. Dowden of Louisville, which was discussed from a surgical standpoint by J. W. Northcutt of Covington and by other members present.

The Secretary of each County Society in the Fifth District will be notified of the date of the next meeting, also will be made acquainted with the program.

OWEN CARROLL, Secretary.

**Harlan:** The May meeting of the Harlan County Medical Society was held Saturday, May 23rd, at 12 o'clock, in the basement of the Christian Church at Harlan.

Dr. C. W. Dowden, of Louisville, gave a paper entitled "Unusual Gall Bladder Masquerades."

Those present: Drs. Cawood, E. M. Howard, Jas. G. Smith, C. W. Dowden, Martin, Akins, N. S. Howard, Nash, McCall, Rowland, Nolan, Petty, Parks, Riley, Peyton, Diefendorf, Riddell, Port, Bushman, Ball, Starks, Linden.

M. M. RIDDELL, Secretary.

#### Blood Pressure in "Avertin" Anesthesia—

A series of 150 cases of "Avertin" anesthesia were observed by Kennedy, with especial reference to the changes on blood pressure. These were found to be greater than previously reported and greater than would commonly be considered safe. At the same time no untoward results were observed, and similar changes are reported in young men exposed to very high external temperatures. From the experience of the series the conclusion is drawn that "Avertin" provides an advance in anesthetic practice of prime importance.



**IN MEMORIAM**

The following resolutions were adopted by the Louisville Urological Society at the regular Ninety-third meeting held at the University Club, April 28th, 1931.

**WHEREAS:** The Almighty in His Infinite Wisdom has taken from our midst Our worthy associate, esteemed fellow member, Secretary-Treasurer of the Louisville Urological Society, Dr. Thomas Clement Hill, who at the outset of a brilliant career was endeared to his brother physicians, respected for his knowledge and ability, liked both by his patients and friends, and whose passing will be felt by the Society.

**BE IT RESOLVED:** That in the loss of Dr. Thomas Clement Hill, The Louisville Urological Society will be deprived of an active, able member and officer; that the medical profession has lost a shining disciple; and the Commonwealth of Kentucky a worthy citizen.

That the Society and the Ladies of the Society, hereby extend to Mrs. Hill, and the bereaved family of Dr. Hill, their heartfelt sympathy.

That the Society omit the March, 1931 regular meeting, the ninety-third of its existence, in deference and honor to Dr. Thomas Clement Hill.

That these resolutions be spread upon the minutes of the Society; that a copy be sent to Mrs. Thomas Clement Hill.

That a copy of these resolutions be published in the Kentucky State Medical Journal.

Respectfully,

IRVIN H. CULTER, President

WALTER F. McCROCKLIN,

Secretary-Treasurer

Executive Committee.

C. S. Eddleman

James R. Stites

L. Lyn Smith.

**BOOK REVIEW**

**PEPTIC ULCER: A SYMPOSIUM OF THE CURRENT LITERATURE.** Research Department, of the Bisodol Company have collected an unusually comprehensive array of the current literature on Peptic Ulcer.

Believing that a digest of this would be of interest to the physician for the purpose of reference, the matter is collected in book form and presented as a symposium on the subject.

The abstracts have been briefed as much as possible, and have been divided into three general sections: Etiology, Diagnosis, Treatment.

**MANUAL OF PHYSICAL AND CLINICAL DIAGNOSIS.** By Otto Seifert, (Late Professor of Medicine, Wuerzburg) and Dr. Friedrich Mueller, Professor of Medicine, (Med. Clinic Minich). Authorized translation from the twenty-fourth German edition.

Edited by E. Cowles Andrus, M. D., Associate in Medicine, Johns Hopkins University. 140 illustrations and 3 colored inserts. J. B. Lippincott Company, Philadelphia and London. Price \$6.00.

A work on diagnostic methods by the master and great clinical teacher, Friedrich Mueller, needs no recommendation from anyone. The twenty-four editions in the German language and the numerous editions in seven other languages attest to the value of this compendium of diagnostic methods and data. American medical students, internes and practitioners should feel very grateful to Dr. Andrus for translating this outstanding work. Every interne and clinical clerk should carry a copy in his white coat to be available when working on the wards or in the clinical laboratory. The student who has had a course of lectures on physical diagnosis and on clinical microscopy and chemistry will find that this little book is all that he will usually need to consult in his work on the wards. The practitioner of medicine who has a copy on his desk will only rarely have to consult any other work on diagnostic methods and data.

**TREATMENT OF EPILEPSY.** By Fritz B. Talbot, M. D., Clinical Professor of Pediatrics, Harvard University Medical School; Chief of Children's Medical Department, Massachusetts General Hospital. Published by MacMillan Company, New York; 306 pages. Price, \$4.00.

Here is a monograph on a subject which has, since the earliest records of medicine, claimed the interest of profound thinkers.

Dr. Talbot in this timely work provides the pediatrician, neurologist, psychiatrist, internist, and general practitioner with the latest conception of diagnosis, prognosis, and treatment. Just off the press, this book stands out as the most modern, complete volume from the standpoint of actual practice. It is a monograph of 308 pages, including original charts and a full bibliography, and so priced as to make it easily available.

**LECTURES ON COLONIC THERAPY; ITS INDICATIONS, TECHNIC AND RESULTS.** By O. Boto Schellburg, New York City.. Published by the Oboschell Corporation, New York City.

The term "colonic therapy" has in the past been so widely and loosely applied that a book limiting its use is welcome to many thinking physicians. The course of lectures presented are of some clinical importance in that they modify common erroneous conceptions of colonic function and therapy.

The series of radiographs of a normal colon are complete and illuminating.

**SURGICAL DIAGNOSIS.** By 42 American Authors. Edited by Evarts A. Graham, M. D., Professor of Surgery, Washington, University Medical School. Three Octavo volumes, totalling 2750 pages, containing 1250 illustrations, and Separate Index Volume. Philadelphia and London: W. B. Saunders Company, 1930. Cloth, \$35.00 a set:

Not within this century has so fine a work as this on Surgical Diagnosis been offered the medical profession. In it you get the surgical judgment of America. Through it, under the editorship of Dr. Evarts A. Graham, are brought to your office, the diagnostic experience of 43 authorities. You get surgical diagnosis as you can get it nowhere else. It is a marvelous work. By a painstaking discussion of differential diagnosis, misleading signs and symptoms are explained and the many clinical presentations of a disease or condition are set out in sharp outline. Bedside and laboratory methods are described, as well as the diagnosis of post-operative complications.

Among the numerous books on surgery this work strikes a new and happy note. It is a work on surgical diagnosis, surgical judgment. Here is not the abbreviated diagnostic help you receive in your surgical text-books. No, here is a thorough presentation of every aspect of surgical diagnosis—the condition, its involvements, its complications, its atypical as well as typical features—everything necessary to help the surgeon plan his work and to guide him in its execution. From the first page to the last the work is complete and soundly practical.

It is to be hoped that many medical men will read this work. The subjects are treated completely and without padding. The illustrations, which are numerous and useful, have been well selected. The contributors include the leading men of the day. The editor and his authors are to be congratulated on the fact that they have adhered strictly to their subject as indicated in the title 'Surgical Diagnosis' is the key-note of the work and it will probably be looked to as the standard on this subject for some time to come.

#### MERCK'S INDEX. (Fourth Edition)

An Encyclopedia for the Chemist, Pharmacist and Physician giving the names and gravities; medicinal action; therapeutic facture; chemical formulas and molecular weights; physical characteristics; melting and boiling points; solubilities; specific gravities, medicinal action; therapeutic uses; ordinary and maximum doses; incompatibilities; antidotes; special cautions; hints on keeping and handling, etc., of the Chemicals and Drugs used in Chemistry, Medicine

and the Arts, together with an appendix containing: Reactions of the more important alkaloids and glucosides; characteristic reactions of acids, bases, metals, and salts; table of atomic weights; thermometric equivalents; specific gravity tables; metric conversion tables; and abbreviations. Merck & Co., Inc. Main Office: Rahway N. J. Works: Rahway and Philadelphia. New York, Philadelphia, St. Louis.

Merck's Index perhaps need no introduction; rather is an explanation due for the tardy publication of this the Fourth Edition—over two decades after the appearance of the previous issue. This delay was caused largely by the complete interruption of work on the book in both laboratory and editorial rooms during the World War. Later it was deemed advisable to await the necessary adjustment, in many standards, which followed the merger of Merck & Co. and the Powers-Weightman-Rosengarten Company.

The intervening years, however, have permitted a most thorough revision and improvement of the work. Its scope has been very much enlarged. Some text included in former editions has had to make way for newer and more important material. Supplementary tables, tests, etc., have been added. At the same time, care has been taken to avoid a massing of matter and detail which would only have defeated the purpose of a condensed, comprehensive, reliable Encyclopedia of Drugs and Chemicals, for the use of members of the chemical, pharmaceutical, medical and allied professions. Particularly do the publishers hope that it will meet the needs of the student, the apprentice, the young man on the threshold of his professional career.

#### LEGAL MEDICINE AND TOXICOLOGY

By Ralph W. Webster, M. D. Ph. D., Late Clinical Professor of Medicine (Medical Jurisprudence) in Rush Medical College, University of Chicago, Chicago, Ill. 862 pages, illustrated. Philadelphia and London. W. B. Saunders Company, 1930. Cloth, \$8.50. Philadelphia.

This volume presents the more usual phases of Legal Medicine in a concise manner so that a busy practitioner may have easy access to the points which he may desire. It does not attempt to include all the subjects with which Legal Medicine may be concerned. A large number of books on this subject have been consulted and quoted by the author.

**DR. COLWELL'S DAILY LOG.** Cromwell Publishing Co., Champaign, Illinois. Price, \$6.00.

One of the doctors who has used this log has found it to be the most satisfactory and complete log for the use of the doctor.





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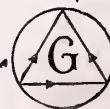
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Annual Meeting, Lexington, Sept. 7-10, 1931

# KENTUCKY MEDICAL JOURNAL



Published Monthly by the Kentucky State Medical Association Under the Supervision of the Council

VOL. 29. No. 8

BOWLING GREEN, KY.,

AUGUST, 1931

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## New Books from the Mayo Clinic

### Mayo Clinic Volume

In this annual volume are brought together the outstanding contributions of members of the Staffs of the Mayo Clinic and the Mayo Foundation. New research findings, new diagnostic developments, new operative technic developed and applied during the past year.

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# KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

VOL. 29 No. 8

BOWLING GREEN, KY.,

AUGUST 1931

## EDITORIALS

### THE LEXINGTON MEETING

Things are moving rapidly in preparation for the annual session of the Kentucky State Medical Association at Lexington, September 7th-10th.

Doctor E. Starr Judd, the President of the American Medical Association will deliver the annual oration. We know this announcement alone will make every physician in Kentucky want to be present. Those who heard Doctor Judd's splendid Presidential Address at Philadelphia, or who have read it in the A. M. A. Journal, will want to hear this great surgeon and philosopher.

Most of those invited by Doctor Kavanaugh to take part in the program have already accepted. The subject program published in last month's Journal indicates the splendid scientific character of the session and an innovation will be a morning hour of clinical reports. We are confident that these will be of great interest and value to every practitioner who hears them.

Reservation for the rooms in the dormitory of the University may be made by writing to Doctor L. C. Redmon, Lexington. Those who prefer going to the hotels can write either to the Lafayette or Phoenix.

In every state attendance this year has been larger than usual. Practically 8,000 registered at the Philadelphia Session of the American Medical Association. Kentucky physicians are looking forward to the best meeting we have ever held in Lexington.

### HONOR WHERE HONOR IS DUE

We had the privilege a few weeks ago of participating in one of the best kind of tributes to a fine physician that we have ever seen or heard of.

Doctor Charles Robert Slater had been a family physician at Erlanger for fifty years. Sometimes we hear complaints from doctors about all their patients going to the nearest, or some other town, for service instead of coming to them. Doctor Slater practices only a few miles from Covington and only a couple more from Cincinnati. There is no better profession in Kentucky than that of Covington, but it was frequently stated at this meeting that few people from Erlanger ever call physicians from any other place unless Doctor Slater suggests it.

The night of the celebration was a stormy one and they said that cut down the crowd. If so, it was fortunate because the largest assembly room in Erlanger was packed. Dozens of grateful mothers were there. Many of them were grandmothers, a few, however, great grandmothers; all of whose generations had had the same fine service from this modest man of medicine. Our own Doctor Blackerby, who had been associated with Doctor Slater in practice, presided and the fine tributes that were paid to Doctor Slater by his professional associates, and by representatives of the families that he had served and by the official representatives of the country and community were genuine and deserved. At last one of the gracious speakers, representing the mothers, presented him with a silken clad baby whose skirts were filled with gold pieces as a material appreciation of the celebration of a Golden Jubilee.

Doctor Slater's life is typical of the finest ideals of the medical profession. He has given his best, his all, to the service of his people. Their tributes, love and confidence for him, were deserved. All of us who sat on the stage, and Doctor Slater most of all, felt that the finest thing about the celebration was that the community of Erlanger, in the very self-abnegation in which they poured out their gratitude to their family physician, complimented themselves as a town with a soul. All honor to Doctor Slater! All honor to Erlanger!

### THE PHILADELPHIA SESSION

It would be impossible for any one individual to give any real impression of the successful meeting of the American Medical Association in Philadelphia.

Philadelphia, itself, is a charming place in which medical men meet. Every few moments one was introduced to one of our hosts who came of a long line of the distinguished names that have made the Quaker City famous. Peppers, DaCostas, Rodmans, Keenes and others reflected the medical tradition of the city in which the first medical school in the United States was established.

The opening General Session was distinguished not only by Doctor Judd's Presidential Address, but by the most unique and thought-provoking Address of Welcome by Doctor Patterson, the President of the Pennsylvania State Medical Association, that it

has been our privilege to hear on such an occasion by a State President. Addresses of Welcome are usually trite. Doctor Patterson's was different, thoughtful and constructive.

The proceedings of the House of Delegates, which has come more and more to mean the adoption of reports of committees and the approval of the action of the authorities who are so wisely conducting the affairs of the Association, were interesting and short. Everybody was delighted that Doctor Ed. H. Cary, of Dallas, Texas, was made President unanimously. Kentucky physicians will recall Doctor Cary especially for his remarkably fine Presidential Address when the Southern Medical held its last meeting here in Louisville. He is one of the greatest men the South has contributed to contemporary medicine. Another claim which Doctor Cary has on Kentuckians is that his charming wife was a Kentuckian.

No description of the scientific exhibits is possible. There were hundreds of them and each one would have required hours or days for real study. The commercial exhibits were also of unusual excellence. All of the advertisers in our own Journal had conspicuous booths.

The proceedings of the several sections were said by those in attendance to have been interesting.

Our members who desire to really acquaint themselves with the most modern developments in medical science should be readers of the Journal of the American Medical Association. We frankly do not see how it is possible for a physician to keep up with scientific progress in medicine and not read this great Journal.

#### DOCTOR JUDD'S ADDRESS

We are sorry that only 28 Kentucky physicians heard the Presidential Address of Doctor E. Starr Judd, at Philadelphia. The subject of it was not so important—the theme was the necessity for the preservation of the general practitioner, the family physician. In knowing the trends in the progress of the art of medicine, Doctor Judd very properly emphasized the necessity for the preservation of individual service by physicians selected by their patients. Of course Doctor Judd would be the last man in the world to disparage the properly trained specialist or to under-value his service, but his statement that 90% of the things which need to be done for the average individual can be effectively carried through by a well-trained, well-equipped general practitioner, is true. The family physician is the man who should determine when a specialist is needed and what specialist.

Doctor Judd's suggestions will, we trust, intensify the practically universal demand on the part of the profession and public for such a revision of our scheme of medical education as will develop all graduates of medical schools into general practitioners. There is no longer the slightest excuse for the youthful graduate whose knowledge is not only limited to, but too frequently in, his own specialty. We suggest that there should be general practitioners in the faculties of medical departments who should actually teach the students. The elimination of this wise group from medical education has become in our opinion, one of the worst faults of this century. They understood and taught the art of medicine. Medical science will develop into more and more accuracy year by year. The successful practitioner will only be successful in practice if he is wisely taught the art of medicine in his youth.

#### HYGEIA

There are a lot of things we just simply cannot understand at all. There are about twenty-two hundred physicians practicing medicine in Kentucky. It is barely complimentary to each of them to say that on the average they have at least ten patients who are intelligent and who are interested in their health and that of their families and neighbors and in the progress of medical science. Each of these physicians must know that raucous and musical voices over the radio are trying to scare or lure these people into every sort of quackery. There is only one specific against the anti-medical group and that is knowledge. When people are taught biology, chemistry and physics and are taught that these not only apply to the arts and sciences that contribute to their commercial success but they also have to do with the food they eat and the lives they live, it will be impossible to take away from them their confidence in the practice of scientific medicine. The food faddists, the mouth-cleaning extremists, the adjusters, the alienists, under one claim of faith or another, all of these can be put to rout by the diffusion of knowledge.

Hygeia is interesting. It has every technical advantage that the modern art of printing can give. It is constructive, it is sound. Every physician should read Hygeia once a month. We, frankly, don't see how they can afford to miss it. Every physician's wife—and if they are members of the Auxiliary they will know this better than we can tell them—should have an opportunity of reading it every month because they will not only have more confidence in their husbands and in their husband's profession, but they will be better able to take care of their own, their children's and their husbands' health and be



better citizens of the community. The American home needs Hygeia. In the best American schools it has become a necessity.

If the physicians of Kentucky will exercise their gifts and graces as they should from 25,000 to 50,000 copies of Hygeia should be read by the people of this state every month. When that time comes, let the quacks do their worst, our great profession will be on a firm foundation of popular knowledge that will make it impenetrable.

### THE RINGWORM PROBLEM OF SWIMMING POOLS

At the Philadelphia meeting of the American Medical Association, in the Scientific Exhibit there was quite an elaborate display of the different types of ringworm, and statistics of their presence in swimming pools as well as golf lockers.

Dr. H. H. Cleveland, of Portland, Maine, has for a number of years, very successfully combated this evil by placing at the door of the swimming pool, a foot bath containing 15% Sodium Hyposulphite. This is inexpensive—is usually bought in five carton lots and made up by the gallon (12 oz. Sodium Hyposulphite to the gallon). Almost every town in America has golf courses,—showers and swimming pools are ever increasing in popularity and in numbers, and this simple procedure is well worth passing on to those in charge of such sports.

### REPRINTS

Immediately upon the appearance of an author's article in the JOURNAL there is mailed a yellow reprint order by the Times-Journal Publishing Company, which contains the prices of from 100 to 1000 reprints, with the notation that the type of this article will be kept until a certain date, usually about two weeks after the article has appeared in the JOURNAL. The type is then "pied" and melted, and is ready to use again for the next issue of the JOURNAL. Many of our contributors have disregarded this reprint order entirely, until they have received requests for reprints, not only from the physicians in Kentucky but from many states in the Union. As this JOURNAL has courtesy exchange with all of the State Journals, as well as many of the special Journals, it is not unusual in an especially interesting article, for the author to receive requests from ten different states,—then suddenly he realizes that he has not ordered reprints and must go to the expense of purchasing the JOURNAL at 50c per copy, and is frequently not able to get all the JOURNALS he requests, when for \$2.00 he could have received 100 reprints.

These reprint orders should be filled out immediately, and as is stated in the circular, mailed direct to the Times-Journal Publishing Company, Bowling Green.

### OFFICIAL ANNOUNCEMENTS

PRELIMINARY PROGRAM KENTUCKY STATE  
MEDICAL ASSOCIATION, SEPTEMBER  
7-10, 1931

#### GENERAL MEETINGS

TUESDAY, SEPTEMBER 8TH, 9 A. M.

Call to Order by the President.

Invocation.

Address of Welcome.

Response to Address of Welcome.

Installation of the President.

Report of the Committee on Arrangements.

#### FIVE CASE REPORTS

Gastro-intestinal and Biliary  
Tract Symposium

1. The Clinical and Surgical Aspects of Disease of the Biliary Tract.
2. The Clinical and Surgical Aspects of Diseases of the Duodenum.
3. The Clinical and Surgical Aspects of Diseases of the Stomach.

Special Order at 12 M.

Oration in Surgery.

TUESDAY, 2:00 P. M.

1. The Injection Treatment of Hemorrhoids.
2. Toxic Goiter, Early Symptoms, Diagnosis and Treatment.
3. So-called Modern Urinary Antiseptic.
4. Syndromes of Chronic Epidemic Encephalitis.
5. Diabetic Coma.

WEDNESDAY, SEPTEMBER 9TH, 9 A. M.

#### NINE CASE REPORTS

Symposium on Diseases of the Kidney

1. Diagnosis and Treatment of Neoplasms of the Kidney.
2. Nephritis, Pathologic Types.
3. Nephritis, Clinical Types.
4. Intravenous Pyelography.

Special Order 12 M.

Oration in Medicine.

WEDNESDAY, 2:00 P. M.

1. Recent Advances in Pre-anesthetic Medication.
2. Ocular Manifestations of Systemic Disease.
3. Etiology in the Diagnosis of Heart Disease.
4. Certain Problems in the Treatment of Fractures.
5. The proper use and selection of Diuretics.
6. Post-operative Treatment in Abdominal Surgery.

THURSDAY, SEPTEMBER 10TH, 9 A. M.

#### Symposium on Empyema

1. Difficulties in the Diagnosis of Empyema.
2. Roentgen Diagnosis of Empyema.
3. Surgical Treatment of Empyema.

1. Clinical and Surgical Aspects of Acute Intestinal Obstruction.

2. The Diagnosis and Treatment of Latent Syphilis.

3. The Diagnostic Value of Encephalography and Ventriculography.

4. The Secondary Anemias in Children.

5. Reasons for Urging Thyroidectomy.

THURSDAY, 2:00 P. M.

1. Contraception: Review of Methods and Indications.

2. Post-partum Care.

3. Accidents of Labor.

4. Secondary Anemia of Pregnancy.

5. Eclampsia, A Preventable Disease.

## ORIGINAL ARTICLES SYMPOSIUM ON X-RAY

### BONE INFECTIONS FROM THE STAND POINT OF ROENTGEN INTER- PRETATION\*

SYDNEY E. JOHNSON, M. D.

School of Medicine, University of Louisville,  
Louisville.

When the program committee of the Jefferson County Medical Society informed me that I was to give a paper on bone infections and bone tumors, in 10 minutes, I felt strongly inclined to assume the role of a conscientious objector, feeling that little of interest or value could be given in such a limited time. However, fearing that I might be permanently catalogued as a piker, we compromised on bone infections.

While bone infections produce changes which, in a general way, are similar to changes produced in other tissues of the body, there are special features, due to the structure of bone, which are often shown with diagnostic certainty in x-ray films. In the interpretation of films it is, therefore, necessary to have a fair knowledge of normal structure. Reference to a longitudinal section of a long bone such as the femur will help to visualize the changes seen in x-ray films as a result of bone infection. The hard parts of the bone form the shaft of long bones, the outer and inner tables of flat bones, and the cancellous bone of the epiphysis, metaphysis, and inner portions of flat bones. The soft parts consist of the periosteum, the vascular and lymphatic tissue of the medulla, the Haversian canal system, the epiphyseal and articular cartilages.

Inflammation always begins in the vascular soft tissues, as the medulla, epiphyseal cartilage, metaphysis or periosteum. The infection may extend from the medulla through the epiphysis or Haversian vessels

to the subperiosteal space, or from the periosteum to the medulla, or may extend the length of the bone in the subperiosteal space or along the medullary canal. The changes produced may be classified as necrosis, caries and sclerosis. Usually one of these three types of reaction will predominate.

The most frequent type of bone infection is acute pyogenic osteomyelitis, and 90% of the cases occur between the ages of 4 and 20 years.

*Staphylococcus pyogenes aureus* or *albus*, introduced into the blood stream from boils or infected skin wounds, is the usual bacterial agent. The site of bone invasion is most frequently in the metaphysis of a rapidly growing long bone such as the femur, tibia, humerus or fibula, although any bone may be involved. In adults the infection is more frequently the result of extension from an infected joint, sinus, mastoid, synovial sheath, or to direct implantation by a foreign body.

Frequently bone tumors or other bone diseases present radiographic appearances quite similar to the changes in osteomyelitis, and in no other branch of roentgenology is a knowledge of normal structure and gross pathological change more needed than in the diagnosis of such lesions. Differential interpretation may depend upon very slight differences in the x-ray shadow.

In the brief time at my disposal, I wish to present three aspects of bone infection as related to roentgenography which should be considered by the referring physician in evaluating or interpreting the roentgenologist's report. Roentgenologists' reports often require interpretation. My remarks are intended of course, for those who have not had special training or experience in roentgenology.

(1) The first and most important fact regarding the x-ray findings in osteomyelitis is that in the acute pyogenic form there are none. The examination is negative. The first positive roentgen evidence follows destruction of the organic elements and removal of the inorganic salts. This takes place in from 5 to 10 days. During this early period the patient's symptoms may be very severe. The roentgen examination is likely to be entirely negative, and the roentgenologist may be unjustly condemned when at a later period some one else demonstrates well marked bone destruction.

The question naturally arises as to whether or not immediate x-ray examination is justifiable. There are at least two reasons why, in my opinion, the examination should be made at once. First, there is always a possibility that there is enough bone destruction to make a positive diagnosis, and second the examination will often show or exclude some other condition, such as an acute joint

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infection, as the cause of the symptoms.

(2) The second point that I wish to emphasize is that after the initial period of from 5 to 10 days, the roentgen interpretation will reach a high degree of accuracy and certainty. Bone destruction has always taken place, and this will show in x-ray films as areas of lessened radiographic density, due to the resorption of calcium salts from the dead bone. From this stage on the progress of the disease may be followed from day to day, and many important features noted, such as the rapidity and amount of bone destruction, whether it begins in and extends along the medullary canal, in or beneath the periosteum, whether an extension from an infected joint, sinus or mastoid, or from an implanted foreign body. Sequestra of dead bone can usually be identified. Healing usually begins early and is shown by endosteal or periosteal new bone formation. Metastases to other bones can also be shown in about 25% of all cases.

(3) The third point which seems to me worthy of special attention concerns a certain percentage of cases which show on roentgen examination well marked changes in bone structure, but changes which have no specifically diagnostic features. Such lesions are not often confused with typical pyogenic osteomyelitis seen in young patients, but are fairly frequent in adults. The diffuse sclerosis of long bones sometimes seen in long standing, chronic osteomyelitis may be identical in radiographic appearance with bone sarcoma. Unorganized sarcomata, secondary tumor invasion, gummata, bone abscesses, may give roentgen findings which are not definitely diagnostic. Roentgenology as a specialty has been justly criticised for over-reaching the bounds of certainty in the diagnosis of bone tumors. With apologies to Will Rogers, I might add that it isn't all our fault. The clinician comes around and sort of wheedles us into putting our neck out, and then delights in sawing it off. Fortunately it is usually possible to say whether a tumor is benign or malignant, and that is in most cases the question of greatest importance.

There is no time to describe the morphological changes which characterize and differentiate various bone infections from each other and from other bone lesions. In spite of frequent failure to accomplish all that is desired, roentgenology is of inestimable value as an aid in diagnosis and as a guide to treatment.

## EARLY DIAGNOSIS IN PULMONARY TUBERCULOSIS\*

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Since the symposium is limited to roentgenology the purpose of this paper is only to show the value of early x-ray examinations in suspicious chests, and especially the roentgenological findings in early pulmonary infections, and without aid of physical or clinical findings, in view of the fact, that no chest examination is considered complete when omitting the former or the latter. A proper roentgen examination is recognized as one of the most important diagnostic procedures in chest diseases because normal lung tissue excels all other tissue in transparency, while pathological changes are contrasted.

In spite of the amount of work that has been done on early diagnosis of pulmonary tuberculosis, it is a fact that a vast number of people are found to have the disease in an advanced state when first examined. This is due to the fact that the early infection is often so mild and insidious that the patient looks upon himself as a sufferer of just a cold or possibly influenza, and when the symptoms are sufficiently severe to cause him to seek medical advice the disease has become advanced.

Pulmonary tuberculosis begins as a primary infection plus a series of re-infections or toxin infiltration of the pulmonary tissues; the primary infection is seldom or never recognized and the progressive reinfection and infiltration constitutes our typical pulmonary tuberculosis plus allergic reactions.

Roentgenologically the primary focus of infection should manifest itself as an infiltration process, but usually occurring early in life it is not observed, as the patient is often not conscious of the primary infection. Reinfection foci in the majority of cases occur in the apical and subapical regions, and if visualized early show a perifocal infiltration.

The areas of infiltration or foci of infection are the most important findings in early recognition of tuberculosis and may appear in any part of the lung, the apex, subapex, base, or anywhere between them. The amount of infiltration and inflammatory changes which appear as an allergic reaction depends on the patient's immunity to the toxins of the bacilli. This allergic reaction causes acute inflammatory changes which later undergo absorption or chronic inflammatory changes. These cases generally have an abrupt onset and the roentgen examination may reveal a soft, cloudy

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patch isolated in the midst of apparently healthy tissue, usually below the clavicle and the axillary portion of the lung. The nature of the patch is broncho-pneumonic, occasionally seen in children, and considered primary tuberculous; or in adults as tuberculous pneumonia. These areas are less frequently seen in the lower lobes. Often they are oval in shape and the size of a cherry, or larger, and sometimes involving the greater portion of the upper lobe. The apical region is less frequently involved than previously supposed. Degenerative changes often occur early with excavation, but these should not be interpreted as early diagnostic signs but indicative of a grave prognosis. These early lesions occur mainly in young persons and adolescents, though Fishberg has met with many in persons over forty-five years of age.

As an example of early infiltration no better one can be cited than that reported by Kudlich and Riemann in the Archives of Pathology, 1930 (page 963). "It was observed in a boy, aged 19, who died following an operation for a conglomerated tubercle of the brain. The x-ray picture of the chest sixteen days before death showed a typical infraclavicular lesion with uninvolved apexes without demonstrable excavation. The pathologico-anatomic examination revealed caseous, acinous-nodose, tuberculous foci in the middle and lower thirds of the upper lobe of the right lung, while the upper third of this lobe was free from lesions. All foci were surrounded by non-specific inflammatory processes which were diagnosed as perifocal infiltration. The lower lobe of the left lung contained a calcified primary focus the lymphoglandular component of which was found in the draining lymph node. This case, which is apparently the first complete pathologico-anatomic report on a case of a relatively young so-called "early infiltration," shows that this lesion was a reinfection and that it occurred without previous apical involvement.

In order to state definitely the positive nature of the early infiltration area a serial roentgenogram study is essential and every demonstrable infiltration or focus judged on its own merits and observed so a spread does not occur.

This necessitates accuracy and comparability of roentgenograms in conjunction with expert interpretation plus physical and clinical findings.

## DIAGNOSIS OF PEPTIC ULCERS\*

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Perhaps no other section of X-ray diagnosis depends so much upon the personal equation of the roentgenologist as does the diagnosis of peptic ulcer. This variation is dependent chiefly upon three factors. The first of these is the very wide range of difference in the appearance and mechanical action of normal stomachs, the second is the considerable difference which may be evident in the action of the stomach in the presence of a peptic ulcer; this of course is dependent to some extent upon its location. The third factor is the experience of the examiner in observing a sufficiently large number of both normal and abnormal stomachs. This is very important. It tends to render the opinion of the occasional examiner as of doubtful value. There is no other X-ray examination where the experience of the roentgenologist is to be more relied upon.

It must always be remembered in attempting to evaluate X-ray examination as an aid in the diagnosis of gastro-intestinal lesions any where that mechanical action only can be observed. The examiner is deprived of the valuable help of history, physical signs and chemical gastric analysis. His report therefore must always be looked upon as a laboratory finding which may either corroborate or disagree with the other evidences. It is, however, in the majority of cases a very positive and accurate help and to be relied upon.

During one year beginning December 1, 1929 and ending December 1, 1930, there presented for X-ray examination in the City Hospital 465 patients with complaints of the stomach. These examinations were made by Dr. Sydney Johnson or myself. In many instances repeated observations were required before any conclusion could be reached. Of this number we were able to dismiss 340 as having no definite pathology in the stomach or duodenum. 31 failed to return for further examination which was requested. 86 were definitely diagnosed as pathologic. Distribution of the lesions:

Duodenal ulcer .....	51
Penetrating duodenal ulcer .....	3
Gastric ulcer .....	7
Penetrating gastric ulcer .....	6
Malignancy of the stomach .....	9
Extra-gastric tumors .....	2
Diagnosis uncertain .....	8

There were therefore 67 patients presenting definite evidence of peptic ulcer from 407 on whom a satisfactory examination was completed or approximately 16 5% of those

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presented for X-ray examination on account of stomach complaints or 1 patient in every 6.

It is accepted that duodenal ulcer occurs much more frequently than gastric. The differentiation as to location is not usually very difficult unless the occurrence is very near the pyloric ring. Thus of the 8 cases listed as "diagnosis uncertain" we were quite sure in 3 of these that a peptic ulcer near the pyloric sphincter was present, but its location could not be decided. We may well discuss the diagnosis of peptic ulcer and leave its exact location to the signs which are definitely characteristic.

There are a few signs which when present render the diagnosis relatively simple and certain. These are:

1. Constant filling defect—either niche or accessory pocket.
2. Constant incisura.
3. Constant hour glass deformity.
4. Constant deformity of duodenal bulb.
5. Constant interference of peristaltic wave at a given point.

Less valuable signs are:

1. Retention of 20% or more of barium after 6 hours.
2. Definite point tenderness on deep palpation.
3. Difficulty in filling duodenal cap.
4. Hyperperistaltic action, very rapidly emptying stomach.
5. Lack of tone of stomach and hypoperistalsis.

No doubt the most valuable single sign is the filling defect which when definite indicates an ulcer and its location at once. If a niche, its character must be studied to positively differentiate it from malignancy. The pliability of the stomach wall and character of the peristaltic action are important, in malignancy, the wall being more rigid and offering greater interference to the peristaltic wave. The accessory pocket usually denotes a penetrating type of ulcer and is of great value, not alone for determining the site of the lesion but in constituting usually a definite indication as to the course of treatment. The incisura may occur opposite either of these defects and may be found when neither of them can be definitely visualized. If constant and not affected by peristalsis it is a valuable sign. The hour glass deformity is not common and leads always to a differential study as between ulcer and malignancy. Its "B" shape in ulcer as contrasted with the "X" shape in malignancy with a greater separation of the sections of barium and inelastic walls must be considered.

One sign of perforating ulcer is the accumulation of air under the diaphragm obtained with a film taken in the erect position. A separation of the liver from diaphragm on the right side is the most fre-

quent finding. This was observed recently in two patients taken as emergencies without the administration of barium. The sign was interpreted as evidence pointing toward perforation and was confirmed at operation.

The foregoing signs refer especially to gastric ulcer although the characteristic filling defects and the incisura may all be observed at times in the duodenum. An irregular bulb difficult or impossible to fill with barium even on manipulation is the most constant sign of duodenal ulcer. If any one or more of these signs be present its value is augmented if by pressure directly over it a point of tenderness can be demonstrated.

If 6 hours after the administration of the motor meal there remains in the stomach 20% or more of the barium, a pathological functioning of the stomach is evident. This retention is very frequently found in peptic ulcer of the duodenum or pylorus where either by scar tissue contraction or by an irritative spasm of the sphincter muscle the emptying of the stomach is prevented. So frequently do extragastric conditions give rise to spastic state of the sphincter, however, and so often also may scar tissue or adhesions about the pylorus and bulb mechanically prevent the emptying of the stomach that this cannot be considered a constant sign of ulcer. Hyperperistaltic action of the stomach in which it very rapidly empties in an almost constant stream is also a suspicious sign. If a point of tenderness directly over the duodenal bulb can be demonstrated this constitutes a very suggestive sign of duodenal ulcer. If either of the last named signs, however, constitute the major evidence it is well to administer tincture of belladonna for a few days or give some atropin by hypodermic immediately before and observe the stomach at another time. A complete relaxation with normal emptying will go far toward excluding ulcer. Definite lack of tone with hypo-peristalsis may be found but not frequently as a sign in gastric ulcer.

These criteria apply equally well to the post-operative stomach on which plastic operations or gastro-enterostomy have been performed. The mechanical action of the stomach is so disturbed, however, that diagnosis of ulcer or its location is much more difficult than before operation.

However valuable may be the X-ray in diagnosis of gastro-intestinal lesions the roentgenologist is by far more frequently able to exclude any definite gastric or duodenal pathology than to find it in his examination. This to the clinician is frequently more valuable though it probably more often alters his original clinical impression.

Extra-gastric pathology producing symptoms referable to the stomach must constant-

ly be borne in mind. It is the privilege of the roentgenologist to point out to the clinician an extra-gastric condition he may observe during the fluoroscopic and film examinations of the patient and which may reasonably bear upon the condition. Thus an enlarged heart, tuberculosis or other pulmonary lesions, gall stones or scoliosis of the spine may have quite as much significance as if he should report a peptic ulcer or gastric malignancy. It is well if the roentgenologist also may have the freedom to suggest to the clinician or actually perform an examination of the colon or make cholecystograms since pathology of the colon or gall bladder so frequently misdirect symptoms toward the stomach.

We exercise this freedom in the City Hospital and among the 340 reports of negative gastric or duodenal lesions we have found evidence of extragastric pathology in 79 which may account for or contribute to the stomach complaint. They were:

Gall Bladder (Graham test positive)....	38
Enlarged Heart .....	15
Abnormalities of the Colon.....	9
Pulmonary Tuberculosis Moderate to	
For Advanced.....	5
Abnormalities of the Kidney.....	2
Kinked Ureter .....	1
Enlarged Spleen.....	1
Aneurysm of Ascending Aorta.....	1
Arthritis of Spine.....	1
Mass in Abdominal Wall.....	1
Question of Malignancy of Lung.....	1
Question of Appendicitis (subacute)....	4

Frequently the clinician and roentgenologist as well consider a peptic ulcer as a well established and usually chronic lesion in the stomach or duodenal wall which is more or less permanent and hard to heal. I personally believe that just as small superficial sores or spots of leukoplakia occur on the mucous membrane of the mouth and after some discomfort heal not to recur, that there likewise may frequently be just such a superficial erosion or sore on the gastro-intestinal mucous membrane which may spontaneously heal with perhaps no tendency to chronic recurrence. As the etiology of these places in the mouth is uncertain so also may they occur from obscure cause further downward in the intestinal canal; and as they constitute a source of great annoyance in the mouth so should they be expected to give rise to very unpleasant symptoms and pain in the stomach.

It seems to me highly probable that such a lesion may give rise to spasticity of the stomach with retention of barium and perhaps tenderness when no definite diagnosis of peptic ulcer could be certainly made. I believe that this condition probably constitutes one perplexing point in the inability to

make a definite clinical or X-ray diagnosis of ulcer where there are symptoms of short duration which present changeable evidences both clinically and roentgenologically.

In summary:

1. X-ray of the gastro-intestinal tract is a laboratory procedure depending upon the mechanical action of the canal and while a very accurate and positive aid to diagnosis it must always be held as subject to the limitations which in general surround laboratory interpretations.

2. One most valuable fact is the ability by X-ray examination to point out the danger of penetrating or perforating ulcers and thus decide upon a surgical course when safest.

3. The most frequent use of X-ray examination is no doubt in excluding any organic lesion of these parts. The roentgenologist should often be of aid in pointing toward extragastric lesions which may contribute to the complaint.

4. It is probable that very superficial lesions of the gastro-intestinal mucosa do not present the characteristic classical evidences of peptic ulcers and may go undiagnosed both by clinician and by roentgenologist.

#### MEDIASTINAL TUMORS\*

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New growths of the mediastinum are not as uncommon as is generally supposed. Statistics show that about fifty per cent of new growths of the mediastinum are primary, the anterior mediastinum being the site of common occurrence. They may be either carcinoma or sarcoma, of which eighty to eighty-five per cent are sarcoma or lymphosarcoma.

Eighty-five per cent of primary lymphosarcomas found in this location occur in patients over thirty years of age, being most commonly found between the ages of thirty and fifty. It is rare to find it in a child under five years of age. Males are more commonly affected than females, the proportion being two to one.

#### ETIOLOGY

The exact origin is not known. Many sarcomas show a close resemblance to inflammatory lesions; especially is this true of children as is shown in one of the cases reported. Some are classified as infectious granulomas. Ewing states, "It seems probable that sarcomas, like carcinomas, arise through exaggerated inflammatory and regenerative overgrowth of tissue cells. While in many cases the cells of origin are adult, the theoretical consideration suggests that in some cases they are embryonal." Most pathologists are

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of the opinion that lymphosarcomas arise in loose connective tissue of the mediastinum, broncho-mediastinal lymph nodes, thymus, or remnants of the thymus.

#### DIAGNOSIS

The diagnosis is made by a careful history, physical examination, a laboratory study, roentgen examination of the chest, biopsy, and a careful study by a competent pathologist.

The symptoms are variable, depending upon the time the patient is first seen and the pathology present. Symptoms and signs may change rapidly as the process is usually rapid and by pressure on a bronchus may give a sudden massive collapse of the lung, when alarming symptoms may present.

The size of the tumor is no index to the symptoms as a large tumor may give no symptoms, while a small tumor may occlude the bronchus and cause sudden alarming symptoms and still be so small that it may be missed at the first x-ray examination. Careful fluoroscopic and stereoscopic film study should be made and repeated as often as indicated. When located in the posterior mediastinum, aneurism, metastatic malignancy, Hodgkin's disease, and tuberculous adenitis must be differentiated. Metastatic lesions of the mediastinum frequently give the same appearance upon the roentgen film and are to be differentiated only by the past history and physical examination.

#### TREATMENT

In some cases of primary mediastinal tumor, if located superficially, surgical removal may be accomplished, to be followed with radium preferably buried in the tumor bed.

In the metastatic growths deep x-ray radiation gives favorable results, but at best is only palliative. In Hodgkin's disease an arrest for years is occasionally seen when treatment is given in the early life of the tumor. Under radiation therapy two to three years of arrest are recorded, the patient being free of symptoms except for the first few months of treatment.

Careful watching for recurrences by frequent roentgen examinations of the chest is required in every case. If rheumatic pains persist in any one bone frequent x-ray films are to be made over any suspected area as a metastasis is always to be borne in mind. Frequently the metastatic lesions are as sensitive as the primary growth, and complete relief from the bone metastasis may be experienced by radiation therapy as was seen in one of the cases here reported, the bone, or bones, apparently recovering completely as compared to the normal bone of the opposite side.

#### CASE REPORTS

Case I. White, male, aged 10. Diagnosis: Hodgkin's sarcoma.

Patient was first seen in November, 1926, with the following history. Ten months previously had a mild attack of "flu" and did not recover completely, as following the attack of the "flu" he had mild attacks in which he had high temperature. He spent the summer in North Carolina, and required the services of a physician in July and August on account of high temperature lasting three or four days, no diagnosis being made. He returned home in September and shortly afterwards had an attack of similar character with temperature ranging from 101° to 106° F., for four days. During the attacks he would refuse to eat and slept most of the time. Occasionally was in a semicomatose condition. The attacks continued to recur, becoming more frequent and lasting three or four days, after which he would have normal temperature and an abnormal appetite for as long as a week. The intervals of attacks were monthly for four or five months, then bi-monthly for two months, and for the last month occurred every eight or ten days. He was admitted to the Kentucky Baptist Hospital on November 22, 1926, at the termination of one of these attacks, the third one for this month. Two weeks prior to admission an x-ray examination by Dr. Smith, of Addington, Va., resulted in a diagnosis of "Mediastinal Tumor" and he was referred to us for treatment by Drs. Pierce and C. W. McNeil of Pennington Gap, Va.

Examination showed a well developed, fairly well nourished boy, showing evidence of mild anemia. In the right side of the neck were one or two small lymph nodes, the size of an olive. X-ray examination of the chest revealed a mediastinal tumor.

One of the small lymph nodes in the neck was removed and microscopical study was made by Dr. J. D. Allen, who reported Hodgkin's sarcoma, the tumor presenting a faint reddish-brown color as is characteristic of this type of neoplasm.

#### TREATMENT

High voltage x-ray therapy applied to the neck and mediastinum was begun the following day and his temperature that day was 101° F. The day following first x-ray treatment it was normal. As reported above, the treatment was begun near the termination of one of his attacks of high temperature. Two days later a similar attack occurred and his temperature reached 105° F. and persisted for only three days. After this he had one similar attack and his temperature was not higher than 101° F. recovery being more rapid.

A letter from his mother one month after completion of the first x-ray series, reported that he had gained several pounds in weight and had only one attack of mild nature during the month of December.

He reported February 7th, 1927, and another series of x-ray was given, though at this time he was free of symptoms, temperature was normal, and he had gained several pounds in weight, both physical and x-ray examinations of the neck and chest showed marked regression of the nodes in the neck and the tumor in the mediastinum was barely visualized on x-ray film.

Monthly reports from his mother were that he was free of symptoms throughout the months of March, April, May, June and July. In August he returned and was given two applications of x-ray and at that time he was free of symptoms. He was given no further treatment and remained free of symptoms for several months. Then he began to have evidence of anemia and died approximately two and one-half years after the onset of the disease.

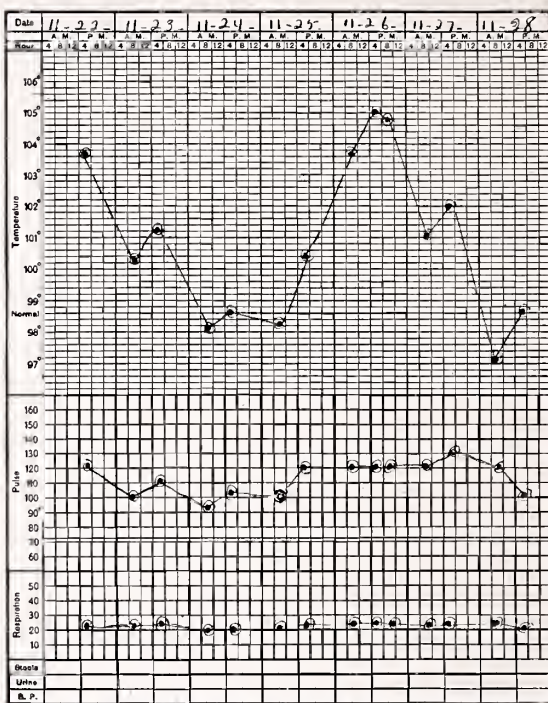
#### DISCUSSION

To one who has watched patients of this type he is frequently impressed how closely infections are related to these malignant neoplasms. We have had several cases of this type, one of which followed an attack of measles, the patient beginning to have an elevation in temperature at irregular intervals. Most of these patients we have seen had the primary evidence of neoplasm in or around the mediastinum, accompanied with exhaustion. All of the tumors of this group are quite sensitive to radiation, all the patients improve rapidly and may remain free of symptoms and feel quite well for many months or a few years, but eventually die usually of anemia, never showing any evidence of recurrence or metastasis in other lymph nodes. Occasionally one will be salvaged and remain well for years.

Case II. White, male, single, aged 34. X-ray diagnosis: Thymoma (Malignant Tumor of Thymus.)

Family and personal history were of no interest. He enjoyed good health until December, 1928. His first notice of any abnormality was enlarged glands in the neck and he was first treated for a suspected thyroid tumor. A few days before we saw him, in the latter part of January, 1929, he had a tooth extracted for a small apical abscess and following this had rather free bleeding with marked infection accompanied by swelling of the face and neck.

At the time we first saw him there was some obstruction to the return of the blood supply of the head and neck, and swelling of the head, neck, face and forehead was present extending to the hairline. On first x-ray examination the entire right chest was represented by a dense shadow characteristic of a chest filled with fluid. After aspiration of 800 cubic centimeters of blood-stained fluid, another x-ray film was made which revealed a partially collapsed lung with a



massive nodular tumor of the mediastinum. At this time there were a few small enlarged lymph nodes in the right side of the neck that could be palpated through the massive amount of swelling and edema.

X-ray therapy was begun and within two days after first application of x-ray the nodes in the neck had disappeared and we had lost our opportunity to obtain a specimen for biopsy.

Even under treatment the fluid in the chest quickly recurred and during the months of February and March numerous aspirations, of several hundred cubic centimeters of fluid from the pleural cavity, were made. The largest amount at one aspiration was fifteen hundred cubic centimeters approximately one month after x-ray treatment was begun, and for the first time the fluid was straw-colored. Later aspirations were always straw-colored. The regression of the tumor was quite rapid and expansion of the lung was slow. The first x-ray examination of the chest that showed complete expansion of the lung was four months after the beginning of the x-ray treatments. Treatment was discontinued as patient was free of symptoms and had regained his normal weight.

Metastasis: One year after beginning of treatment the patient returned with a large metastatic mass involving the parietal and frontal bones. The mass was saucer-shaped and about the size and shape of the half closed hands.

X-ray examination of the osseous system also revealed a metastasis in the upper half of the left femur. It was not characteristic of any metastasis that we have ever seen.



The destruction of the bone was very fine, though very definite. Within one month after beginning of treatment patient was free of symptoms, though no change could be noted by x-ray films in the bones that were involved.

Six months after the first bone metastasis was noted the bones had apparently completely recovered and no difference in the density of the femurs could be noted when compared on x-ray films.

One month later he returned with low back pain and pain in the urinary bladder and rectum and he was unable to walk without assistance on account of pain. He had lost several pounds in weight and appeared to be almost helpless. X-ray examination of the pelvis revealed partial destruction of the third and fourth lumbar bodies with no evidence of metastasis in any of the other bones. At this time the femurs appeared to be normal.

An x-ray treatment was given over the lumbar spine and the patient reported three days later that his pain was relieved within six hours time after the x-ray treatment and within two days he was able to walk without assistance. Three days later he came in without crutches or cane which he had been compelled to use before treatment.

X-ray examination of the spine 3 months after treatment showed very little change in the shadows of the third and fourth lumbar bodies. Four months after treatment there is evidence of regeneration in the lumbar spine.

Approximately one year after first evidence of metastasis in the bones of the skull he showed a recurrence in these structures and they are again showing evidence of regression under treatment. At present the patient is free of symptoms referable to the spine, bladder, rectum, femurs, and frequently walks four or five miles a day without any pain. As to how long this patient can be carried along under close observation and treatment of his metastatic lesions no one is able to determine. There is little doubt but that his metastasis will sooner or later involve structures that will be fatal unless he develops an anemia as many other cases of Hodgkin's and similar conditions develop and he will succumb to anemia or metastasis.

Diagnosis: From the position and character of the mediastinal tumor we have made an x-ray diagnosis of thymoma, which is quite a rare tumor. It is supposed to originate in the thymus gland, or remnants of the thymus gland. We hope to make a further report provided we are able to obtain some superficial lymph node that may metastasize and that can be removed for biopsy.

## ROENTGEN RAY TREATMENT OF BLOOD DISEASES\*

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The group of diseases sometimes loosely referred to as the lymphoblastomas is, in a sense and with reservations, decidedly amenable to x-ray therapy, although the end results in almost all cases treated are in one way or another unsatisfactory. Therefore, the roentgen therapist's first consideration is that which should indeed be the first consideration in all therapeutic measures; to make sure that he does not aggravate rather than improve the situation. It may be said that the individual lesions in these diseases respond extremely well to radiation while the diseases themselves do not always do so. Thus it is possible to reduce to normal or almost to normal the enlarged spleen; to melt away the glandular tumors; to reduce the leukocyte count; but not always to save the life of the patient. That very much indeed can be contributed to the patient's comfort and sense of well-being and that life can often be prolonged, sometimes for a considerable period, no one who has watched the progress of treated and untreated cases of this type would be disposed to deny.

The acute leukemias, usually if not always of the lymphatic type, which tend to run their course in a few days to a few weeks are probably often better not treated. The justification for treatment, when it is used, must be found in the relief of discomfort from swollen glands, in the dissipation of leukemic deposits which are occasioning distressing symptoms, perhaps sometimes in reassuring the patient through the knowledge that treatment of some sort is being applied, since quite without exception, dissolution follows promptly quite regardless of radiation or other therapy.

The more chronic types of lymphatic leukemias as well as cases of the splenomyelogenous type are suitable for x-ray or radium therapy and the results, for the time being at least, are a source of great gratification to the patient and to the physician. The glandular masses whether superficial or situated in the chest or abdomen respond promptly to very moderate doses of radiation, disappear, and do so without any untoward local reaction. Distressing dyspnea caused by enlargement of the hilus glands can be relieved in a few days. The unsightly tumors the cervical region are similarly responsive. The leukocyte count can be reduced almost at will although the character of the blood picture, as reflected by the differential count.

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is very little and the constant, although often very gradual, fall in the platelet count and in the polymorphonuclear count indicates the relentless progress of the disease in spite of treatment. The occurrence of a very low platelet count, especially if accompanied by a sharply decreasing erythrocyte count, usually marks the beginning of the terminal phase and the end of the hopeful period when definite if temporary, results can be promised from further radiation. It was formerly customary to radiate in these cases all of the involved glandular areas, the spleen, if enlarged, and the long bones. Of recent years few therapists have continued to treat the long bones and radiation has been directed only to involved groups of glands and to the spleen, but the latter only in case there is palpable and marked enlargement.

The radiation therapy of Hodgkin's disease is quite similar, both in technique and in its ultimate benefits, to that just described in connection with the leukemias. The involved glands require perhaps a somewhat larger dosage. The results are, however, unfailingly gratifying so far as the individual groups of glands are concerned and not infrequently one sees patients who can be carried along for a period of years, finally to succumb to some intercurrent disease, so that it is perhaps as fair to speak of these as cured cases as it is to hope ever to cure an organic heart lesion or a chronic nephritis. Since there are no characteristic blood changes in connection with Hodgkin's disease, the terminal anemia usually serves to give warning that the period during which roentgen-ray therapy is available is drawing to a close.

Lymphosarcoma, in whatever location it may occur, is characterized by a most prompt, uniform, and often almost miraculous response to radiation. The required dosage is small. There should be a little general and almost no local disturbance as the result of radiation and the lesions, as they recur, can be relieved with satisfaction for a period of months or years, varying with some unknown factor in the patient's ability to combat the disease. In our experience recurrent lesions do not develop any ability to resist radiation but are always amenable to treatment, the patient finally dying from a terminal anemia or cachexia.

Less clearly defined is the place of roentgen therapy in various hemorrhagic diseases and less common blood dyscrasias, such as the purpuras, agranulocytic angina, etc. It was observed many years ago in the German clinics that extremely small doses of x-ray frequently repeated, over the apparently normal spleen had a tendency to stop hemorrhage from such totally unrelated sources as the endometrium and the gastric or duodenal

mucosa. This effect was apparently dependent on some alteration in the clotting reaction, perhaps more specifically through the blood platelets. It is certain that this maneuver is not uniformly successful but it seemed to have sufficient merit that it became routine in the treatment of uncontrollable hemorrhage from any of the internal organs. From this apparently successful application it was an easy step to attempt the radiation of the spleen in the purpuras. Apparently little has been written about it and perhaps one can best say without undue temerity that it is probably worth trying. The dosage in any event should be so small as to preclude any possibility of damage to the spleen itself or of depression of the blood picture in general.

The x-radiation of agranulocytic angina, a rather rare condition characterized by lesions in the throat accompanied by an almost total absence of leukocytes from the blood, appears to be on purely empirical grounds. Of a small group of cases reported from Germany, those patients who recovered had all received small doses of x-ray over the long bones. These doses were so small as to suggest to the experienced radiologist that they could not possibly have had any effect whatever; however, the patients in this series who did not receive the x-ray treatment died, while those who did receive it recovered. On this basis it seems worth trying. We have had one such case with Dr. Rowan Morrison and the result was a very happy one in that the patient "turned the corner" and began an uneventful recovery the day after x-ray treatment of the long bones and a blood transfusion. Which, if either, of these measures determined the fortunate result no one was able to say. The subject is very much open for discussion since no one knows very much, if anything, about it.

#### DISCUSSION

**Benjamin L. Brock:** All of the essays in this symposium have been very instructive to me, however I wish only to discuss briefly the paper by Dr. Herrmann on the X-ray diagnosis of pulmonary tuberculosis. I am very much pleased that this subject has been included in the symposium since it gives me an opportunity to emphasize its importance as one of the cardinal aids in the diagnosis of this disease. There are five criteria or cardinal signs of tuberculosis which were elaborated upon by Dr. Lawrason Brown some few years ago and which were later adopted by the National Tuberculosis Association and American Sanatorium Association. These criteria for diagnosis are as follows and I name them according to their importance as I see them:

- (1) Tubercle bacilli in the sputum on two or more occasions.

- (2) Parenchymatous X-Ray change in the



upper half of the chest.

(3) Rales in the upper half of the chest which persist for at least a week.

(4) Pleurisy with effusion.

(5) Hemoptysis of a dram or more.

The first three of these signs are considered to be pathognomonic of tuberculosis. The last two can make us suspect the disease only in the absence of one of the first three. Even though positive sputum and rales in the upper half of the chest are pathognomonic of tuberculosis, they in themselves tell us only a small part of the story. They only tell us that tuberculosis is present. They do not give us the true picture of the pathological change nor the extent of the lesion. The x-ray on the other hand gives us, in the majority of cases, a fairly true picture of the process. It is true that physical examination of the chest in cases with cavity reveals the cavity in only about 50% of the cases. If this is true, how important it is that we x-ray all patients where a diagnosis or a suspected diagnosis of tuberculosis has been made. A case can not be properly treated at the present time without an x-ray. This is because we are using surgery rather frequently and we would not attempt to recommend any form of surgical treatment for pulmonary tuberculosis without the x-ray.

The x-ray in the diagnosis and classification of childhood type of tuberculosis is of most importance. In fact, without the x-ray we could not have any definite clear picture before us. Childhood type tuberculosis represents an infection only. It does not represent disease. For this reason the sputum is always negative. The tuberculin test when positive indicates that the child has been infected. It does not tell us whether the lesion is acute or latent. Exposure of a child to an open case is only presumptive evidence of infection. We cannot therefore do without the x-ray in childhood type tuberculosis nor can we dispense with it in adult type disease if we are to properly classify and treat our patients.

**Harry Goldberg:** We cannot too strongly emphasize the importance of early diagnosis and early treatment of all bone diseases, before changes are manifested in the x-rays. In making the diagnosis we must consider: a careful history, thorough examination, with proper evaluation and interpretation of the signs and symptoms present; and in most cases we must also study the laboratory findings to make an early diagnosis.

**Joseph C. Bell.** I agree with what Drs. Johnson and Goldberg have said in regard to the early diagnosis in bone disease, especially osteomyelitis. It is true in many cases of osteomyelitis that no bone changes can be detected in x-ray films during the first few days of the disease. The physician must realize that negative findings during the early stage of the infection do not necessarily mean that disease

is not present. I believe if operation were resorted to early in the course of the disease, serious and extensive consequences would in some instances be prevented. Where the clinical findings are sufficiently definite, surgery is justified at times in cases where no evidence of disease can be shown by x-ray.

Dr. Herrmann's paper on The Early Diagnosis of Pulmonary Tuberculosis was brief and to the point. He showed very clearly the characteristic changes that may be expected in this disease. There is one thing I believe that we, as roentgenologists, should ever keep in mind, and that is not to label too many cases tuberculosis. There has been a tendency, especially in children, to diagnose tuberculosis upon insufficient evidence. In some cases it is impossible to say with certainty whether or not a child has tuberculosis without knowledge of other findings, as well as those of the x-ray.

Dr. Overstreet's paper on Diagnosis of Peptic Ulcer covered the subject very thoroughly. He mentioned gastric retention. In my experience a small six hour retention is not at all uncommon. It always suggests the possibility of organic disease, but in many instances no organic abnormality can be found. Usually there is a suggestion in the general appearance of the stomach as to whether there is, or is not, an organic cause for the retention. In those having organic disease, the stomach is usually dilated, while in the ones with no organic disease, it is very often entirely normal in appearance. A reexamination will frequently show whether or not there is an organic cause for the retention and whether or not the retention is constantly present. The highest degree of retention is usually associated with cases showing organic lesions in or near the pylorus. The largest retention is often seen with ulcers in the pyloric channel. Retention is less common in malignancy of the stomach than in cases with an ulcer.

Dr. Keith has demonstrated the results that can be obtained with roentgentherapy in mediastinal tumors. It has been my privilege to observe his result in some of these cases and they have been excellent.

**Curran Pope:** The neurologist encounters many cases of morbid fear and dread in patients who have been told they have pulmonary tuberculosis and this diagnosis has proven incorrect. They live under the Sword of Damocles, and develop many neuroses and psychoneuroses. Prolonged psychic and other treatment is required to restore them to normal condition.

**Sydney E. Johnson,** (in closing): As to the lateness of the roentgen diagnosis of osteomyelitis, I tried to emphasize in the first part of my paper the fact that the positive roentgen signs occur as a result of removal of lime salts from the dead bone. This takes place in from five to ten days. The clinical diagnosis is often made at an earlier stage, but the x-ray

examination is still of great value in showing the extent of the lesion.

Dr. Bell's point in reference to interpretation of chest films is well taken. There are a good many chest conditions besides tuberculosis which produce changes in the mediastinal, root and bronchial shadows.

A tuberculosis psychosis is undoubtedly substituted in some individuals for some other form, such as cancer of the stomach, breast, uterus, etc., but such patients do not as a rule go long without something, and it might as well be tuberculous as anything else. At least tuberculosis in this form should respond well to sanatorium treatment.

**H. C. Herrmann**, (in closing): I thank the doctors for their discussions. I did not intend to create or leave the impression that the diagnosis of pulmonary tuberculosis in its early stages depended entirely upon evidence afforded by the roentgenogram. All other diagnostic methods should be considered and used. Every case should be carefully studied, and where the evidence is not definitely clear, such a case should not be considered tuberculosis until so proven.

**D. Y. Keith**, (in closing): There is only one point I wish to mention in closing. During the past few years many reports have appeared in the literature showing a series of cases of the lympho-sarcoma group that there was no prolongation of life and that radiotherapy could not be of very much benefit if life was not prolonged.

In answer to statistics with this comment would say they have missed seeing the patients, missed seeing the great relief obtained and further if I knew my days were to be shortened a few months I would select being free of distress, free of pain and inconvenience what time I was living. Personally tons of statistics of this type would not change me from giving relief to these suffering and distressed patients. Are there any other methods known at present that give any relief? Why publish statistics that do no good and may prevent a great deal of good from being done?

**I. T. Fugate**, (in closing): I agree with the gentlemen who have stated it is a serious thing to label anyone with pulmonary tuberculosis unless the findings are definite and distinct. From an x-ray standpoint it is often difficult to obtain definite findings in the early stages of the disease. It is a serious proposition to make the diagnosis of pulmonary tuberculosis based on the roentgen findings unless the clinical evidence is fairly definite. There are several lesions which may closely resemble tuberculous changes in the chest, and these must be excluded before we make the diagnosis of tuberculosis.

Referring to Dr. Keith's remarks on mediastinal neoplasms. I do not believe there is anything in our line that gives more satisfaction

than to see these tumors disappear under roentgen therapy. Such growths make the patient very uncomfortable and anything we can do to lessen their discomfort is well worth while.

## DISEASES OF THE COLON\*

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Owensboro.

More recent investigation and study of the physiology of the body and chemical analysis of foods, and their important relation to digestion and assimilation, has shown that the colon stands among the first in point of contribution to auto-intoxication.

The colon, by nature, is a waste disposal plant, the contents consisting of food residue food garbage plus bile, mucus and other body waste, poisonous materials which should be promptly eliminated, that we may keep the body clean and the blood stream pure.

We read a good deal in newspapers and journals about the care of the teeth and tonsils, mouth, and general hygiene of the body but very little regarding the care of the colon. Some time ago the practice of removing the colon by surgery was in vogue. This was done, in many instances, on the finding of the least pathology. At this time a tremendous number of colons were slaughtered by the knife. But further study of the chemistry of the body and the chemical analysis of foods, has taught us that many cases of disfunction, are and were, amenable to treatment other than the knife.

Observations of the x-ray, thanks for this wonderful discovery, has revealed to us that the human colon in the majority of people is a poor, limp, morbid, misshaped, distorted infected, kinked, paralyzed, incompetent most diseased, and more neglected than any organ in the human body. The x-ray has shown us, not only more about the physiology, but has revealed to us a state of pathology of which we knew but little. A larger percent is due to ignorance, neglect, and over indulgence which contributes a major part of that most prevalent, most harmful, and most neglected ailment which afflicts the American people.

It is indeed no surprise of the prevalence of this well known malady when we think of the number of remedies suggested by the various medicine companies, ignorant laymen, yes, and many times, by the careless or indifferent doctor. Let me say here, emphatically, every case of persistent constipation should be regarded as a grave condition, at least, until, the cause is well known. Oh! there are so many doctors for this disease, on the street corner, in the drug stores, railroad stations, court houses, yes, and in our religious journals and Sunday School papers everywhere.

\*Read before the Daviess County Medical Society.



In every public place we see advertisements for cures for constipation, and the gullible public are perfectly willing to take the word of the Shark, who manufactures his pill, or decoctions, as the "Gospel Truth." As a matter of fact, we get relief, but we only relieve a condition and know nothing of the real pathology.

The purgative habit over-stimulates the intestinal villa, over-excites peristalsis, ultimately producing inactivity, impairing absorption and nutrition. The habit of taking purgatives with the American people has become one of the most abusive and therefore contributes more to ill health than any other of which we are aware. Why not invest in a good fountain syringe and occasionally wash out the sewer exit gate as we do the entrance gate, not with pepsodent, but with an alkaline solution, sodium bicarbonate. In the purgative habit we are sowing the seeds of destruction the outcome of which means disaster. We are "sowing the wind and will reap the whirlwinds."

A number of us may recall the day of Tutts pills which was at that time a universal remedy for constipation. Tutt's slogan was "Take Tutt's Pills." This he had placed along the highways in the old Hoosier State. Whitcomb Riley, in passing, took notice of its frequent appearance and decided to change the reading and so he made it read thus; "Take Tutt's pills and prepare to die." This, no doubt, would be the ultimate end. The American people are accused of spending five billion dollars annually for medicine three billion of which goes for patent pills, or purgatives.

Let us consider for a moment a few of the abnormal colon conditions; constipation which is not a disease, caused in the majority of instances from spastic colon, emanating from errors in diet, over indulgence, and over medication pills, prolapsed colon; the colon must rise as it fills to enable it to empty itself, adhesions of the cecum, which prevents contraction, chronic appendicitis, dilated or pouched cecum, overstretched bowel, loses its power to contract, disfunction of the ileocecal valve, kinks, diverticulitis, paralysis of the rectum, caused from resisting the call of nature. The rectum is not a depository but a gateway, yet we find in the vast majority of people an abundance of fecal matter on storage. Tight sphincter causing rectal constipation and colon regurgitation.

Space nor time will permit a discussion of all of the above named abnormalities but we shall endeavor to think of the most common sequela of such pathology mentioned above. First, constipation. Constipation is that condition in the bowel which causes a difficult movement or lessens or retards the normal dejecta. I am not quite willing to agree with

the one who states that any well formed stool means serious constipation and that one stool a day means constipation, any more than I believe that three to six stools would signify that such a one is not constipated. If the first affirmation be true then most every animal in the kingdom is seriously constipated. On the other hand we have very marked cases of constipation with all too frequent bowel movement. The evidence of constipation as manifested in the stools depend more on the quality and quantity of the stools than on the frequency and infrequency. Normally, the food when taken into the mouth should be in the colon inside of eight hours, according to some authors, then count that it should traverse one fifth of the distance in one half the time which would complete its route in twelve hours. We do know this, that you find people in perfect health who only have one stool in twenty-four hours. We have seen them who were seemingly in good health who only had a stool every three days. Be this as it may, we do know that the colon is one of the most prolific sources of contamination and by reason of an over delay of food residue on its itinerary we have putrefaction and absorption of the most virulent substances, which may and do end in broken down liver cells, inflammation of the gall bladder, rheumatism, and many other pathological conditions we may expect to have in evidence in any other auto-intoxication. We may readily understand how this is brought about when we study the following facts:

There are two special organisms which live and thrive in the alimentary tract and enter into the process of digestion, bacillus acidophilus and the putrefaction bacillus. The former living and thriving in an acid medium and feeding on carbohydrates. The latter thriving in an alkaline medium and feeding on proteins producing a poisonous albuminoid substance which may be absorbed into the blood stream.

Someone has said that thirty six toxic substances have been found in the colon and that the reason for our escape from these various poisons is due to the fact that a part of this material is carried by the portal veins to the great chemical furnace, the liver, where it is burned. This has been shown by experiments on dogs, wherein anastomosis was established between the portal veins and the inferior vena cava into the general circulation. The dog showed typical symptoms of hemoclastic shock due to destruction of erythrocytes. This shows that the liver acts as a detoxicating agent for the blood which comes from the portal veins. But the continual over-taxation results in disfunction and we have broken down cells contamination of the blood stream, impaired functions of other

organs of no less importance, ultimately chronic invalidism and death.

Dr. Alfred Jordan writing in "American Medicine" speaks of the effect on the bowel wall of the intestinal absorption, states that the wall of the colon suffers in two ways, by the impure blood supply and by the decomposition of food. The cells of Auerbach's plexus upon which peristalsis depends deteriorate and a well defined disorder of function occurs which is one of the most frequent abnormalities found on x-ray examination with bismuth. The normal peristaltic wave which should force the food on its way is replaced by numerous feeble efforts which result in squeezing only a small quantity of mucus but a short way on the contracted bowel, the main fecal mass remaining imprisoned and stagnate to keep up the absorption of bacteria. Dr. Jordan also states that a colitic bowel is as common as a set of bad teeth "The same cause is at work in each," (Faulty diet.)

The symptoms complex of colon putrefaction are numerous and should be reckoned with. Some one has designated gall stones as monuments erected to the memory of typhoid fever. It has been shown that the injection of the *Bacillus Eberth* into the veins produced cholecystitis, followed by vesical concretions. Biliary stones have been produced by injecting colon bacilli into the blood and according to Desgorges, cholelithiasis, in almost all cases depends on chronic inflammation of the gall bladder caused by intestinal germs, that, after having entered the blood stream by lymphatics and chyle duct, are eliminated, in part, by the bile. That the intestinal germs filter through the mucous membrane was shown as far back as 1891. They penetrate the mucous membrane by preference, through the ascending colon, but not always. Retarded colon function causes putrefaction, diminished acidophilus and as the consequence of this an absorption of deadly germs, some of which are not destroyed by phagocytosis and are filtered through the kidney and bile duct which results in a bacillus coli infection of both the liver and kidney.

The colon, appendix and gall bladder, are known to be important factors in the causation of chronic arthritis. Yet there are some who claim that arthritis is not infectious. Whether we believe that it is due to infection from the colon or not we do know that the relief of the joint disturbances have been obtained when certain abnormal findings in the colon have been corrected. The patent medicine vendor has profited in these cases on the hypothesis that the seat of the trouble is in the colon. He cleans out the colon with his cathartics then follows this by his rheumatic cure. The chiropractor has taken the cue. He irrigates the colon and then makes his ad-

justments. We have observed that the majority of rheumatic cases will improve after a "good round" of calomel. In my opinion, calomel has a two fold effect on these cases; first, it is the best intestinal antiseptic we have and it is one of the best drugs to arouse the emunctory organs. It has a positive effect on the germ of putrefaction. Whether or not it promotes the growth of the acidophilus bacilli I do not know. Certainly many of us recommend to our patients a stay at the springs. This often gives temporary relief, stops the absorption of toxins of free elimination.

Dr. Fishbaugh, in the American Journal of Surgery quotes a review of 324 private patients treated for infectious arthritis. 80 cases, who on careful study, revealed definite abdominal pathology. This survey is based on analysis of 80 patients free of infection in teeth and tonsils, sinuses, genito-urinary and cardio-respiratory tract and in fact, free of infections from any other source. He states that the larger intestine is doubtless the most common part of the gastro-intestinal tract to cause infection.

Five abnormalities have been found in the alimentary tract which are factors in contributing to chronic arthritis. First is constipation; Second; Chronic or sub acute colitis. Third; Bands and adhesions. Fourth; Diverticulitis. Five: Hemorrhoids and inflamed crypts.

The sudden onset of these cases with chills fevers and acute joints was not observed in a single instance. But the beginning was insidious. The symptoms were quite similar to those observed in focal infection, from tonsils, teeth. There was swelling, coated tongue, bad breath, sour stomach, anorexia belching, and abdominal distress and frequent headache.

Colon intoxication is a causative factor in certain forms of mental and nervous diseases. I recall a case diagnosed as senile dementia by a very reputable physician. After relieving the rectum and sigmoid of fecal impaction, the patient made an uninterrupted recovery. Colon bacilli may be responsible for many neurasthenic diseases as: asthenia, asthma, depression, moodiness, irritability, incapacity for mental work. The lack of fecal elimination results in disfunction of all the emunctory organs of the body, which slowly, surely, lowers the vitality to a very appreciable degree and results in chronic invalidism and if not relieved, death.

As we approach the sunset of life all of the emunctory organs begin to wane in their function and by reason of carelessness or neglect, we begin to suffer fecal stases. It is at this time that the symptoms of auto-intoxication become manifested; after the mechanism of the body, through which nature



deals with the poisonous materials have become over worked from the load that has been carried for a long period of time, we are warned that something is wrong and are often satisfied to contribute this ill feeling to "Old Age." We have coated tongue, sallow complexion, offensive breath, foul smelling perspiration, offensive gases, dullness of mind, mental irritability, attacks of migraine, and sick stomach.

Rheumatic pains and so-called idiopathic hypertension we often see and these unfortunate patients, after receiving the proverbial salicylates with no effect they are consigned to the "Rheumatic Colony" where he remains reconciled to his fate, unless, by chance, he is able to spend a long time at the Salts Springs where he may get a good sewer sweeping which would render temporary relief. This cleans out the sewer, you see, and washes away the bacteria. The treatment of high blood pressure by colon irrigation is very convincing in many cases. This is the method that the Chiropractor uses preceding his adjustments.

Dr. Desgorges, the well-known Vichy Clinician, states we have all seen and are familiar with the painful creaking of the nape of the neck. A familiar symptom but heretofore an obscure pathology. There further exists a colibacillary lumbago which may exist without any kidney disturbances. This kind of pain is aggravated by the dorsal position and so is worse at morning. The far reaching and multiform effect of this tube of microbes below the diaphragm that we have carried over long period of time, as an etiological factor has not enlisted the grave consideration of the medical profession and it stands without further comment, that the layman who knows but little regarding body health has no knowledge of the destructive effect on the physical economy of this oft offending member.

In conclusion let me say that, the physician who fails to recognize the colon as a major factor in the causation of disease is reckoning without his host and may come to grief.

**Pneumothorax Therapy of Pneumonia in Infants.**—Jahr and Neumann employed artificial pneumothorax in five infants with pulmonary diseases. The authors agree with Duken and other investigators that in some cases this method has therapeutic value. Artificial pneumothorax is indicated in cases of pneumonia with a protracted course and also when pneumonia is complicated with interlobar pleurisy or with mediastinal pleurisy.

## INFANT FEEDING AND THE PRE-SCHOOL CHILD\*

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Louisville.

Many of us forget, when we think of preventive medicine, that infant feeding is a very important branch of that field; however, when we consider that by properly feeding an infant and giving him the proper nursing care, his development and nutritional state is greatly increased; the bony framework of his body has the correct posture and it is much stronger; his muscular system has much better tone; his digestive system is better able to properly perform its duties; his body as a whole is much stronger; he is more active both mentally and physically—hence his vitality and resistance to infectious diseases is greatly increased. He does not succumb so readily to the common upper respiratory infections, and especially he does not fall so easily a victim to the serious gastro-intestinal diseases that account for so many deaths in infancy. So in partially preventing these diseases we are greatly decreasing infant mortality rate.

While the above infections can only partially be prevented, there is a group of diseases, namely: the vitamine deficiency diseases, as Rickets, Scurvy, Polyneuritis and Pellagra, that can be definitely prevented by the early addition of accessory foods rich in vitamins, as they are specific in preventing this avitaminoses group. So it is readily seen that infant feeding is a very important factor in preventive medicine, a thorough knowledge of this subject is most important to those of us doing general practice, public health work, obstetrics and pediatrics.

If every woman who became a mother had an abundant supply of breast milk, our infant feeding problems would practically all be solved, as this is the one complete and ideal infant food. Breast milk is greatly desired above all possible substitutes. The reasons as so clearly stated by Stone are: (1) The food is fresh; (2) It is clean to the point of surgical cleanliness; (3) It is easily available at all times; (4) It is delivered at the correct temperature; (5) It is economical; (6) It is naturally adapted in character and amount; (7) It is prophylactic against some diseases and sometimes is curative in itself. Furthermore, on the maternal side, it is conducive to prompt involution of the pelvic organs and to the general well being.

This does not mean that we never have trouble with breast fed babies. We frequently do; but on taking a careful history and making a complete examination, we often find that the trouble can be corrected and the

\*Read before the District Health Conference of Health Officers at Georgetown.

baby continued on the breast. Things that frequently influence the breast milk: The general physical condition of the mother, her psychic state, her diet, the amount of her fluid intake and her vitamines and galactogog intake and, last, the thoroughness with which the breast is emptied at each nursing and the interval between feedings. All of these things play an important part in producing breast milk that is sufficient in quantity and quality.

In a majority of instances when a baby does not do well on the breast, it is because of insufficient quantity of milk. The baby cries a great deal and the mother complains that her baby has colic. Frequently the baby has diarrhea because by crying so much he does not thoroughly digest the small amount of food that he does get. He does not make the proper gain in weight and on weighing before and after nursing it is found just what quantity of milk he is getting. In the event the amount of milk is insufficient, complementary feeding should be started; that is, make up the deficiency with artificial food.

Supplementary feeding or substitution of an artificial food for the breast milk requires an accurate knowledge of the baby's requirements both as to the caloric and fluid needs. It also requires an accurate knowledge of the caloric value of the food that is to be substituted for human milk. Many artificial infant foods are on the market now, so many that it is impossible for one to have a working knowledge of them all. In spite of all this, however, because of the marked similarity of cows milk to human milk, it still rightfully ranks second to breast milk. However, there are a number of very important facts that should be remembered about cow's milk. They are:

(1) Cows frequently have tuberculosis. It is possible for them to infect a child by their milk. All cows should be tested for this disease, and if found reactors, should be killed.

(2) Cow's milk is always contaminated and frequently with harmful bacteria. It should therefore be kept as clean as possible and boiled before using.

(3) Cow's milk while it has the same caloric value as human milk, and contains the same vitamins, it differs chemically and physically from human milk.

	Human	Cow
Protein .....	1.25	3.50
Fat .....	3.50	3.50
Sugar .....	7.00	4.00
Salts .....	.30	.75

The curd in cow's milk is much larger and tougher than that of human milk, and is therefore harder to digest. As is seen from the above table cow's milk contains almost

three times as much protein and twice as much ash as human milk. So it is necessary to dilute the milk to cut down on the percentage of protein and ash content. On the other hand, human milk contains nearly twice as much sugar as does cow's milk. It therefore is necessary to add sugar in some form to build up the percentage of sugar and to increase the caloric value of the mixture.

Cow, as human milk, contains 20 C per oz. The normal baby requires from 1½ to 2 oz. of milk per lb. of body weight, to furnish the necessary protein for proper body tissue development, and from 45-50 C per lb. per day to produce the proper gain in weight. Also the normal infant needs about 2½-3 oz. of total fluid per lb. of body weight per day. Thus the formula is estimated; it should then be boiled to render it sterile and more digestible. The longer the milk is boiled, the more digestible it is.

We shall now discuss some of the more important prepared foods. Evaporated milk (unsweetened) is whole cow's milk reduced by evaporation to 50% by volume and canned. It is sterile and is a splendid food. Only being necessary to dilute with equal parts of sterile water to have ordinary milk. Powdered milk as Klim and Dryco are prepared from cow's milk by a drying process to evaporate water and when properly diluted Klim is equal to whole milk, whereas Dryco is equivalent to cow's milk with about half of the fat removed. Both are sterile and both very good.

Protein milk is now available in cans. It as is implied by the name, is high in protein is sterile and has a definite field in infant feeding, being especially useful in fermentative diarrheas and in marasmic conditions where a high protein diet is needed to rebuild the wasted tissue.

Lactic acid milk is a splendid food. It is easily digested and usually well tolerated. Most babies do well on it. The formula is prepared from fresh cow's milk in the usual way. After boiling it must be cooled, then 3 drops of U. S. P. Lactic Acid is added for each oz. of milk, the addition must be made slowly and the formula stirred while it is being added.

Condensed milk is so high in sugar and low in protein, that though the child will gain weight rapidly, he is not in a healthy nutritional state, as the rapid gain in weight is due to water retention.

Vitamines: These are substances of unknown composition that are necessary for health, growth and life, and when they are omitted from the diet, it produces the nutritional diseases as Rickets, Scurvy, and Polyneuritis, etc.

Vitamines are added to the diet of infants as accessory foods—orange juice or tomato



juice from which vitamine "C" is derived is added at about one month and should be given in 1 oz. to 2 oz. doses daily during childhood. This vitamine prevents Scurvy. Cod Liver Oil should also be added during the first month; this contains an abundance of vitamine "D," which prevents Rickets, also it contains Vitamine "A" which promotes growth and has a tendency to prevent infection.

Vitamine "B" which is the anti neuritic is found in yeast and in the embryo of grain. It is now available on the market and is put up in combination with Dextra Maltose, and may be used in artificial foods from the beginning. As stated before, if these accessory foods are begun early and given in sufficient amounts, they will prevent this group of deficiency diseases.

Milk is low in iron, so babies have a tendency to become anemic. To prevent this beef juice, being rich in iron, and very digestible, may be added to the diet as early as 2½ to 3 months.

Strained vegetable soup is also very digestible and containing vitamins and mineral salts, may be added at about 4 months.

Cooked cereal which will furnish bulk should be added at about 5 months.

Egg yolk either raw, or a 40 minute egg then grated may be added to the infants diet at about 6 months to 7 months. Green vegetables cooked until tender may be started at 6 to 7 months. Stewed fruits, also scraped beef may be added at about 8 to 10 months.

The baby should be examined at monthly intervals the first few months of his life, to make sure that he is gaining properly; that he is developing both mentally and physically as he should; that he has no deformities, and if any are found, they may be early corrected. As they grow older the intervals between examinations are gradually increased.

Before the first year has passed, the baby should be given the diphtheria toxin anti-toxin injections and 3 months later should have the Schick test to be sure he is immune to diphtheria. In the event this test is positive, the diphtheria toxin anti-toxin should be repeated. Also before he is a year old he should be successfully vaccinated for smallpox.

In passing from babyhood into the pre-school child age the diet is gradually increased and new articles added. During this period a child should get a quart of fresh milk, one egg, cooked and raw cereal, toast or dry bread, starchy and green vegetables meat—beef, veal, mutton, lamb or fowl, cooked or raw fruits, and desserts, as custard, junket, jello and occasionally frozen ices. It is very important that both cod liver oil and orange juice be given all during childhood.

During the pre-school age children should

be examined thoroughly every 3 to 4 months watching carefully for

- (1) Signs of nutritional disturbances.
- (2) Satisfactory gain in weight and proper development.
- (3) Correct posture.
- (4) Foci of infections as tonsils, teeth and adenoids.
- (5) Visual disturbances.
- (6) Establishment of the right kind of habits.

In addition to immunization against diphtheria and smallpox, it is wise, especially in country districts or where there is questionable water supply, to vaccinate for typhoid and paratyphoid fever.

Last, but not least, it should be remembered that by taking the proper isolation precautions, also by the use of a gauze mask much can be done to prevent the spread of the common cold. In an infant frequently severe complications develop from the common head cold. So in preventing its spread, these severe complications may be avoided and thereby infant mortality be decreased.

## CHOREA, REPORT OF A FATAL CASE\*

JOHN J. MOREN, M. D.

Louisville.

In our every day practice we do not infrequently encounter diseases which so rarely result in death that we do not anticipate a fatal termination. For example, chorea is a malady from which we expect the patient to recover. Quite recently there occurred in my practice the first death I have seen from what appeared to be a typical Sydenham's chorea.

In reviewing the literature it is found that death may be expected in two to five per cent of cases. The British Medical Association investigating committee reported nine deaths in 439 cases. Judging from that report the investigation was confined to Sydenham's type of chorea.

Sinkler (Sach) (1) reported 64 deaths from chorea in Philadelphia during seventy-six years. The mortality from the chorea of pregnancy (chorea gravidarum) is said to be greater; some authorities hold that it is very high, while others do not. French and Hicks Albutt (2) reported three deaths in 29 cases.

Dana (3) in his text book states that "Chorea is more fatal in adults, especially pregnant women. This is the statement of European authors. I have never seen a fatality, and many cases of chorea in pregnancy have been observed in my service in Bellevue hospital."

Chorea insaniens, a type with high fever,

\*Read before the Louisville Medico Chirurgical Society.

hallucinations of sight and hearing, with clouding of consciousness, is less frequent and gives a higher mortality.

Death from chorea results from complications or conditions that may be the consequences of the chorea.

In discussing the infrequency of death from chorea, it is suggested that many may have been classified under the name of the complication, as endocarditis, pericarditis, cerebral hemorrhage, etc. These complications are well known and appreciated as grave symptoms in chorea.

The interesting question is, can death occur in an uncomplicated case from causes consequent to the chorea? From the statements of a number of authors this question can be answered in the affirmative.

Oppenheim (4) says: "Death occurs in about three to five per cent of cases. Death occurs only in the exceedingly severe forms in which the muscular contractions were so excessive as to make sleep and nutrition impossible and thus produce a condition of exhaustion which proves fatal either of itself or by means of fatty degeneration of the heart. According to Richon, death is either due to a fulminating collapse without any objective cardiac symptoms or to endocarditis but changes in the heart were usually found in cases of the first class."

There was no accepted pathology of chorea until 1920, when Marie reported changes corresponding to those noted in epidemic encephalitis.

The real cause of chorea is unknown, but its relationship to endocarditis and rheumatism is unquestioned. Rheumatism, influenza, etc., do not cause degenerative changes in the central nervous system. If such were the case we would see more sequelae after an attack of chorea.

Buzzard and Greenfield (8) believe "The accumulation of evidence supports the view that chorea is an infective disease of microbic origin, although there may be room for doubt with regard to the specificity of the virus." Therefore we may look for changes that might be brought about by such infection.

Dana (3) says, "Chorea has no definite anatomical basis, though the seat of the disease is in the brain. The irritant seems to come from and acts first upon the blood vessels, causing in severe cases hyperemia, with dilatation of the vessels, small hemorrhages and spots of softening. The process suggests a low grade or an initial stage of inflammation caused by some micro-organism."

Oppenheim (4) states, "There is no doubt that we do not as yet know the pathological cause of chorea. It is certain that it is not as a rule caused by gross pathological changes, and that in typical cases there is either no organic disease or merely fine

changes which are capable of regression. There can be no question of the fact that chorea is a brain disease, but we cannot say with certainty whether the lesions are localized in the central ganglia, cortex, cerebellum, or in all of these."

Greenfield and Wolffsohn (7) claim. "There is now a sufficient body of evidence to prove that the pathological basis of chorea minor is a diffuse or disseminated encephalitis affecting chiefly the corpus striatum and involving the cortex and the pia arachnoid. The micro-organism responsible for this is the same that causes rheumatism. Epidemic encephalitis has proven that fatal encephalitis may occur with slight signs of cellular infiltration of the brain tissues, so acute chorea might do the same thing."

In the past decade several deaths from chorea with autopsies have been reported. Some, as in the Marie case, showed changes corresponding to those of epidemic encephalitis. Death in those cases occurred within two weeks of the onset, and had the patients lived longer it is thought other symptoms would have developed to change the diagnosis.

In the American literature two deaths from acute Sydenham's chorea have been studied, namely: one by Wilson (5) and another by Ziegler (6). Their findings did not correspond to those of encephalitis, but showed changes which might be noted following any toxic condition.—hyperemia, swelling of nerve cells with change of location of nuclei though little destruction of cells.

The basis of chorea is an encephalitis from some type of infection. This inflammatory reaction is characterized by hyperemia and swelling of nerve cells, but without degenerative changes. Hemorrhage and emboli are more likely to occur as complications rather than processes of the disease. These changes may be found in any acute toxic condition, and are explained by such a condition.

The symptoms of chorea are explained by the location of the inflammation. Epidemic encephalitis with choreic symptoms attacks the basal ganglia, corpus striatum, and it is reasonable to assume that this area attacked by a different infection would give rise to the picture of chorea.

Buzzard and Greenfield (8) say "We are not in a position to correlate the movements so typical of chorea with any particular lesion in any particular part of the brain, but there is a general tendency to regard choreiform movements as a manifestation of disturbance in the functions of the basal ganglia rather than in those of the motor cortex. The asthenia, which may sometimes be very profound in choreic patients, may be looked upon as evidence of the influence exerted by



an infective virus upon the nerve cells of the brain, and the occasional presence of reflex changes, such as an extensor plantar response, points to the conclusion that the pyramidal tracts may at times suffer severely from toxic effects. Hyperpyrexia and mania are occasionally serious complications in the course of chorea, and are generally attributed to the effects of poison and exhaustion on particular regions of the central nervous system."

One of the factors which influences the prognosis is age. Charcot held that death rarely occurred in individuals less than 14 years old, and that after this age a remarkable change appeared in the gravity of symptoms. The same opinion is held by other authorities.

It is the exception for the patient to have fever. In some cases one or two degrees may be noted for a short time, but a temperature of 102° F. or higher that persists is not a good omen. All the reports of death from chorea which I have read showed that fever persisted throughout the illness.

Endocarditis is important not only as a severe complication but from the possibility of emboli. The French place stress upon rapid loss of flesh.

#### CASE REPORT

Patient, Miss D. C., aged 21 years. At the age of seven she had an attack of chorea from which she recovered without any ill effects. Since that attack she has been the average healthy girl. In the past two or three years she has complained of vague pains which be attributed to her occupation, she worked in the refrigerating department of a meat packing house.

About May 21st, she began to notice some muscular twitching which suggested to the mother a return of the chorea. The family physician was called who informed them that she was suffering from St. Vitus' Dance.

On May 29th I saw the patient for the first time. She then presented the typical picture of pronounced chorea. The movements were quite active and she was unable to control them. Her temperature was 101° F., and her pulse was rapid, otherwise the physical examination was negative. I noted no evidence of tonsillitis, endocarditis, or any other inflammatory condition. She had complained of aching of the extremities, especially about one knee; this knee had been injured at one time but it presented no swelling suggestive of arthritis.

On account of the rise in temperature I began the use of salicylate of soda. This was continued for two days, but had no influence over her condition. The movements increased. she was unable to sleep, unable to talk, and feeding most difficult.

I tried phenacetin, aspirin and whiskey. These had no effect. Veronal was given

without the slightest influence on the choreic movements. The fever persisted.

On June 1st, the patient was in almost constant movement and was given morphine and hyoscine hypodermatically. This quieted her a little, but no sleep. She had but little nourishment and practically no sleep.

I was called at ten o'clock at night June 1st, and found her in a state of collapse. There was an occasional slight twitching of some of the muscles, the pulse was rapid, respirations feeble. The pupils reacted to light and she could be aroused from her stupor, but would quickly relapse. There was no paralysis.

Examination of the heart at this time showed absolutely no abnormal signs to suggest endocarditis. If I may use the expression, "the heart sounded to me like a very weak heart." I gave her an hypodermic of 1-8 grain of morphine and 1-30 grain strychnine. Death occurred at one o'clock the following morning, June 2nd.

This case presented all the characteristics of a typical Sydenham's chorea. On account of the fever, which is exceptional in these cases, I was watching for signs of endocarditis, joint symptoms, etc., but at no time were they manifested. I cannot account for the death except from exhaustion, the result of some infection, lack of food and sleep. On account of the apparent failure of the circulation, it is assumed that the death was cardiac and not respiratory.

As stated at the outset, this is the first death from chorea that I have seen in thirty-six years of practice. About ten years ago I saw a very severe case of chorea in a girl fifteen years old who had some fever. She was treated at the City Hospital and died shortly after admission. That death occurred when we were having many cases of encephalitis and I thought it might have been something other than chorea. After having seen several of the choreic type of encephalitis I question the diagnosis of chorea.

#### REFERENCES

- (1) Sach: Text Book.
- (2) Albutt: System of Medicine.
- (3) Dana: Text Book of Neurology.
- (4) Oppenheim: Text Book.
- (5) Wilson: Archives of Neurology and Psychiatry, vol. 9, p 107.
- (6) Ziegler: Jour. of Nervous and Mental Dis. Vol. 65, p 273.
- (7) Greenfield and Wolffsohn; Lancet, 1922, vol. 2.
- (8) Buzzard and Greenfield; Pathology of the Nervous System.

#### DISCUSSION

**Wm. E. Gardner:** I have been greatly entertained by Dr. Moren's presentation. In many instances chorea is a serious affection, but fatalities appear to be rare. I am sure all of us have seen cases where the patient has been exhausted by the constant movements and

inability to take nourishment. Under such circumstances there is lowering of the alkaline reserve which contributes still further to the exhaustion from motor restlessness.

Dr. Moren said he prescribed salicylate of soda in the case reported. I believe that is the most approved form of treatment at present. The salicylates seem to be of more benefit than any other drugs and certainly are better than Fowler's solution. The salicylates appear to have a definite beneficial effect in streptococcic infections. For example, in streptococcic sore throat the symptoms respond promptly with great relief under treatment with salicylates. I have seen cases of chorea where a combination of aspirin and trional seemed to act as almost a specific.

The interval between the two attacks of chorea (fourteen years) in the case reported was so long that it can hardly be classed as recurrent chorea. I recently read an article from the University of Michigan in which the author precented some very interesting information on recurrent chorea, stating that the possible relationship between lues and recurrent chorea is well worth bearing in mind and should always be investigated. The intervals between attacks, however, were much shorter than in Dr. Moren's case.

**Emmet F. Horine:** The essayist has introduced an extremely interesting subject and reported an unusual case. Though death rarely occurs during the course of an active chorea, the heart complications that frequently result often cause death years later. The patients I saw with chorea during my period of general practice always excited my deepest sympathy partly because the choreiform movements were so distressing and difficult to control but especially because of the knowledge that the heart might suffer irreparable injury.

It is now generally agreed that chorea is of "rheumatic" origin. No definite organism has been accepted as specific but the consensus of opinion indicates that some type of streptococcus is responsible. As Coombs has shown the organism provokes variable phenomena depending upon the structures invaded. Should the brain be invaded, chorea ensues; if the joints, the typical polyarthritides rheumatica follows; if the subcutaneous vessels, the subcutaneous nodules make their appearance and if the heart, physical signs of a carditis become evident. These manifestations may occur singly though in more than 75 per cent of the cases evidence of a carditis is detected either immediately or subsequently. Since this is true, as others have suggested, it would probably be best to regard the carditis as the principal feature and the chorea or joint involvement or subcutaneous nodules merely as complications. Were this concept widely adopted and appropriate rest and medicinal treatment persisted in for a sufficiently long period, the

possible heart damage might be materially reduced. Certainly prolonged and absolute rest in bed should be insisted upon even for months plus the administration of sodium salicylate with alkalization. The diet should be liberal. Sunlight, either natural or artificial and fresh air are additional aids.

In the case reported by Dr. Moren it would seem that he was dealing with a fulminating type. Exhaustion could easily have explained the death.

**Louis Frank:** I have not seen a case of chorea in more than thirty years. During my medical student days we saw a great many cases especially in female children. I rise to inquire what is the real pathology in chorea. Is it actually a disease entity, or is it a manifestation of some other type of pathology. We were taught in the childrens clinic of Heidelberg many years ago that chorea was purely an imitation disease. Children suffering from chorea were isolated and given large doses of salicylates. The statement made at the time was that practically all the children recovered. Personally I have never before heard of a death from chorea. What the cause is I do not know.

I am asking for information. Is chorea a real disease, is it a manifestation of some other malady, is it a symptom-complex, or is it originally a disease which can be recognized as such?

**Wm. J. Young:** I wish to discuss one point only, that is the possible relationship between syphilis and chorea. So far as is known these two diseases are totally unrelated. There seems no good reason, however, why they might not coexist in the same individual.

It is well known that when the etiology of any disease is uncertain or obscure, syphilis is mentioned, in text books and elsewhere, as a possible causative factor.

**John J. Moren,** (in closing): Answering Dr. Louis Frank's question concerning the exact pathology of chorea: Autopsies have been performed in such a limited number of cases that the actual pathology is uncertain. In some recent cases there have been found areas of congestion and infiltration in the brain tissue resembling somewhat the changes occurring in certain types of encephalitis. A number of men have contended that in the majority of cases the inflammatory process is practically limited to the basal ganglia. Some observers have reported finding acute disturbances of the vascular system, but no particular type of pathology was mentioned. Consequently the pathology of chorea is undetermined unless we accept the opinion that it is a mild inflammatory reaction.

As to the prognosis in these cases: I have seen quite a number of patients with chorea who recovered and lived many years afterward, and so far as I know they never developed any cardiac signs. I know people with a history of having had chorea during childhood, yet today



they have no manifestation or sign of cardiac disease. Of course, some of them had more or less endocarditis with typical symptoms, but this is not so common as in rheumatic conditions. I have seen people with cardiac involvement who recovered and lived for years afterward. I recall one patient who had what was thought to be serious cardiac involvement twenty years ago, today he is a strong healthy looking man. Doubtless murmurs are still present, but so far as the heart is concerned it is performing its function.

The relationship between rheumatism and chorea is recognized by the majority of observers, but I have personally had no opportunity of verifying it.

As to the relationship between syphilis and chorea: I cannot recall an instance in which I thought syphilis was a factor in the causation of chorea.

So far as the treatment of chorea is concerned, I believe Fowler's solution is one of our best remedies. I have seen cases that persisted for some time, but there was gradual improvement after ascending doses of Fowler's solution. The reason for giving salicylate of soda to the patient whose case I reported was that I believed I was dealing with a rheumatic infection.

In regard to the mode of death in the case reported, I am more inclined to think it was a cardiac death than anything else. Her respiration was good and color of her skin normal. Until ten o'clock the night of her death, there had been no embarrassment of respiration.

As to the possibility of pericardial effusion in this case: I listened to the heart carefully every day, because I was looking for some cardiac disturbance. The heart sounds were clear and distinct. Whether this individual had a dilated heart I cannot say. I believe death was largely due to exhaustion.

I have seen deaths in maniacal cases; they are usually very sudden, and I am inclined to think it is more a cardiac proposition than anything else. I saw one man who died at Camp Taylor. I did not see him at the time of his death, but he expired suddenly in acute delirium.

**Care of Surgical Diabetic Patient.**—The nature of the metabolism of the diabetic patient is described by Gilchrist in order to show how acidosis is produced. An improper diet, lack of food, anesthesia and infection all predispose to the production of acidosis. The appropriate treatment and prevention of this condition is outlined. Emphasis is placed on the important part played by sepsis in antagonizing the action of insulin, in precipitating acidosis and in being a frequent accompaniment of diabetic coma. The use of insulin and dietary measures to combat the production and excretion of ketone bodies are described in detail.

## PSYCHOPATHIC PERSONALITIES\*

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In a recent publication by an authority on mental diseases we find the following statement: "Personality has eluded satisfactory definition. In one sense it is a condensed record of the individual's life long reaction to his environment, and it is the crystallization of this constant interplay and contact. In a broader sense it takes into account constitutional factors, such as bodily structure and temperament, which, like many psychological traits, are largely inherited."

Discussing in a relatively brief way some so-called borderline mental states of individuals who have, by heredity, faulty development, or acquired habits of faulty adjustment to their environment, been considered abnormal or inefficient in their adaptations even in the absence of any demonstrable physical disease, we shall refer to those cases which have usually been designated as psychopathic personalities, but frequently referred to as constitutional psychopathic inferiority.

The designation "constitutional psychopathic inferiority" as applied to many of these borderline states in which the outstanding defects are inadequate emotional and volitional responses of the individual has not been altogether acceptable to some of our present day psychiatrists, who claim that such a designation does not accurately indicate the type of individual to whom the term is applied. With all of their criticism, however, they have not thus far, in our opinion offered a substitute which is any more convincing of its propriety. "Orthopathic personality" has been suggested which might signify an abnormal-normal individual, and be somewhat analogous to a plus-minus Wassermann reaction as reported by some chemical laboratories, but after all such a suggestion is only an example of the trend of mind of many psychopathologists who wish to express in a different way some very old but never-the-less well established principles. Be that as it may, such a designation has had for many years, and still has, the approval of the American Psychiatric Association and is used in most of the recognized textbooks on psychiatry of this country and Europe today. In fact, it was Kraepelin himself who first described in a composite way such an individual as we have in mind, believing it important, in his classification of the more outspoken psychoses, that this type of borderline abnormality should be recognized as a distinct entity and treated as such.

The three principal functions of the

\*Read before the Jefferson County Medical Society.

psyche, which constitute the personality make-up of an individual, are the functions of thinking, feeling and acting, or what have usually been referred to as the attributes of intelligence, emotion and volition. When an individual is endowed with all of these capacities to the extent that he can meet the demands of the community in which he lives, and adapt himself efficiently to the circumstances of constantly changing environmental influences, he may be said to possess a normal or well integrated personality make-up. If, however, his intellectual endowment is definitely below an average that would enable him to acquire and retain new knowledge, and there be such faulty association and comparison of ideas that reason and judgment are distinctly inadequate, such an individual would be considered mentally defective.

It is not this form of mental deficiency we have in mind when we speak of psychopathic inferiority, but rather a defect in the emotional and volitional spheres, especially the latter, of an individual who by the very nature of such deficiencies is inferior in particular phases of his total personality, although he may be endowed with average or even more than average, intelligence. Such an individual might be said to possess a loosely knit, or poorly integrated, personality makeup, and if defective in his emotional endowment, will either not be stimulated to action by a normal sense of feeling regarding his act, or if acting on an impulse, will have little or no enduring pleasure or regret for the course which he has pursued. When acting on an impulse, or taking the line of least resistance which is characteristic of many of these individuals, he exhibits his faulty volitional makeup which is the ability to recognize the strongest and most decided feeling and to act accordingly.

The behavior or conduct of an individual is nothing more than the sum total of his acts extending over a given period of time, be that a few hours, a few weeks, or months, or even a number of years, and is evaluated as normal or abnormal in proportion to his ability to make the proper adjustments to his environment.

While there may be an intelligence defect of varying degrees in a considerable percentage of cases classified as constitutional psychopaths, the fault of their inadequate adjustment to society cannot, perhaps, be assigned to such a lack of development in this phase of their personality makeup, as much as to the more evident disturbances in the emotional and volitional spheres. In fact, many authors who attach no particular importance to the intelligence quotient in this type of cases, have preferred to designate them as psychopathic personalities, in order

that they may be more clearly differentiated from the moron or other border line types of intellectual inadequacy than the term constitutional inferiority might imply.

A study of the etiology in the vast majority of these cases is, to say the least, somewhat disappointing. While in a great many instances there is an evident hereditary factor, and in others a history of neuropathic or psychopathic tendencies in remote branches of the family, as surprising as it may seem, a considerable percentage of cases has come from families of good stock with little or no unstable tendencies so far as the histories could be obtained. It is believed by many that prenatal influences have an important bearing in the production of a considerable number of these cases, in as much as illness and accidents to the mother during the period of gestation may seriously interfere with the proper nutrition of the foetus during the early stages of its development, and that certain portions of the brain and cord, especially the pyramidal portions, appear to be most affected. It is perhaps the pyramidal portion of the central nervous system which has most to do with inhibition of both motor and mental function, and it is significant that in most of these individuals who show impulsive mental activity, which is synonymous with lack of proper inhibition, there is usually not only an exaggeration of all the tendon reflexes, but frequently a nervous jumpy sort of motor restlessness which is sufficient to attract the attention of the most casual observer.

Just how much an improper balance or lack of development of the internal secretory glands, during the period of gestation or early infancy, may play a part in the production of a poorly integrated nervous system none of us can say, but the variation in the types of constitution and the mental trends of particular types, as related by Kretschmer and others, has brought forward the belief that some of these glands, of whose total function we know so little, may have an important relation to the development of the mental characteristics of the various types. While we may occasionally see the constitutional psychopath in the pyknic or athletic type of constitution, our observation has been that such cases are more likely to develop in the asthenic and dysplastic types.

There are various physical stigmata of degeneration in many of these unstable individuals, some of which may be the result of hereditary syphilis but most of which are not, such as asymmetry of the face and head; highly arched palates; irregular and poorly developed ears; too much or too little growth of hair; a flabby muscular development or undue laxity of joints, any or all



of which indicate a developmental fault, and suggest in many instances the possibility of an endocrine disturbance. In addition to these there has frequently been noted an inadequacy of gastric or other secretory functions, and at necropsy definite anomalies in the distribution of the cerebral blood vessels have been observed.

There is a prevailing tendency, and it is much more easy, to assign all of the difficulties of the constitutional psychopath to inherited mental traits and early environmental influences, which latter do play an important part in many instances, yet in our opinion there are many physical factors which are frequently overlooked, one of the most important of which is a defect in the neural mechanism of the individual which has as much to do with his faulty adjustments to society as any other factor, and would account for a considerable number of cases who have been unable to make adequate adjustments, although of good hereditary stock, and reared under the most wholesome environmental influences.

It is quite probable that an environment of wealth and social prosperity has afforded such protection to many potential psychopathic personalities that their deviation from average normal adjustments has been less noticeable than it might have been under less favorable circumstances, and yet the fact remains that not all of these have escaped the attention of the public eye, and some have actually come into conflict with the criminal law. There are, of course, many constitutional psychopaths who have attained a fair degree of success in the business world, and some have risen to positions of social and political prominence, but in most of these instances there has been an element of chance or good fortune which has carried them on its crest to heights of which they had not dreamed at the beginning of their careers. There are others who have drifted along in an indifferent sort of way, having been able to provide for themselves only the bare necessities of life, and whose inadequate adjustments to community life have attracted no particular attention, yet in spite of a good intellectual endowment they have not become an essential part of the community or contributed anything toward its advancement. Cases of this latter sort are usually designated as inadequate personalities. There are others who are unable to make satisfactory adjustments on account of querulent and introspective tendencies and such an exaggerated idea of their own importance that they are suspicious of everyone who opposes them, and are classified as paranoid personalities.

Some who are always moody and depressed. have little physical endurance, and see only

the dark side of every situation which confronts them, are designated as cases of "constitutional depression." In this group might be placed a considerable percentage of alcoholic and drug habitues, whose excesses are no more than an outward expression of a fundamentally unstable constitutional make-up, many of whom are more normal mentally when using moderate amounts of alcohol or drugs than when totally abstaining from their use. Hence, the great difficulty in successfully treating this type of cases so far as removing habit tendencies is concerned.

There are others who are always more or less exalted in their emotional tone, even to the point of almost a state of chronic hilarity, yet not definitely psychotic, and are classified as cases of "constitutional exaltation." Such cases are usually improvident and extravagant in their tendencies, and yet by chance may occasionally strike a streak of good luck and appear to be reasonably successful for a time.

There is also the type who may possess a fair degree of education and who appears to be capable of holding a lucrative position, and yet he wanders about the country begging, from pillar to post, in the capacity of an ordinary tramp, but he is essentially a constitutionally psychopath whose volitional makeup is definitely defective and is classified as a "nomad." There are, also, the swindlers and malingerers who belong to the group of psychopathic personalities, and perhaps one of the most unique is the pathological liar who is designated as one in whose conversation there is so much evident fabrication that his total output is usually referred to as "pseudologia fantastica."

The pathological liar is usually not viscious in his tendencies, and while in exceptional instances he may appear to distort his statements for purposes of his own selfish aggrandizement, there is much more frequently a mixture of fact and fancy in his exaggerated and colorful language which is, in fact, a play for attention, and satisfaction of his own ego ideal rather than an intent of harm to others. Although in most instances an adult when first recognized, he is essentially childlike in the respect that he gives play to an imagination not unlike that observed in many normal children of early, or even pre-school, age. When confronted with facts that disprove a particular circumstance which he has related, he will at once deny, without chagrin, that he ever made any such statement. He is, of course, unsuccessful in anything he may undertake, and has no persistence of purpose. If given a lucrative job in vaudeville in order that he might furnish entertainment for others by his unusual endowment of capacity to exaggerate, he would most likely junk the whole

thing, and seek the crowd in a corner drug store, believing that they would more probably give credence to his remarkable story.

It is at once apparent that the whole class of constitutional psychopaths present a tremendous social problem, and while they are essentially mental deviates, they do not come under the classification of either psychoses or neuroses, and in the vast majority of instances cannot be considered as mentally defective in the sense of borderline imbecility. While some have an intellectual capacity not much greater than that of the moron, yet, as has already been indicated, it is not the lack of endowment in this particular sphere which attracts our attention so much as the faulty development of the emotional and volitional makeup. They usually have capacity to know the difference between right and wrong in the strictly legal sense, but their ability to distinguish between what is morally right and morally wrong is not infrequently very much limited. For this reason a particular type of this class of cases has been designated as "moral imbecility." Under this heading might also be placed the swindler and malingerer, already referred to, as well as cases of "psychopathic sexualis," or the more evident forms of perversion of the sexual instinct, too numerous to mention in this connection.

The treatment of all classes of so-called constitutional psychopathic states is, at best, most discouraging. They are, as a rule, unable to support themselves, much less those dependent upon them, and for this reason either come into conflict with the law or occupy the attention of various social agencies in the larger communities. Their legal responsibility is, of course, limited, and while the courts do not, up to this time, usually recognize their limited capacity as a mitigating circumstance when accused of crime, and they are not committable as such to either state or federal hospitals for the insane, there are undoubtedly many cases who should have this recognition.

With the vast amount of work and study that is now being done toward the prevention of mental disease and mental deficiency, and the large sums of money that are being expended by various foundations throughout the country toward this end, especially in the establishment of child guidance and behavior clinics, one might hope in the years that are to come that something may be accomplished to lessen the number of the class of cases to which we have referred. In our opinion, however, the constitutional psychopathic individual will continue to occupy the attention of social agencies, courts and medical men for many generations, and although he may be given a different name in each succeeding generation, and be treated by specialists in

first one branch of medicine, and then by all the others he will continue to live and move and have his being until his whole fundamental biological structure has been changed. This is particularly true on account of the fact that the conduct disorder in this type of individual is usually not acquired, but represents a life long and constitutional tendency.

A recent authority has stated that statistics are at present unavailable to show the real incidence of constitutional psychopathic inferiority in the average community, but a study of 70,989 first admissions to State Hospitals throughout the country shows that psychoses associated with this condition constitute 1.2% of the total number. It must be recalled, however, that the constitutional psychopathic individual without a psychosis is rarely admitted to mental hospitals.

Something may in time be accomplished by the gradual growth in knowledge of those factors which play a part in the correction of defects in the poorly endowed neural mechanism of this type of individual, but which we believe will not be materially enhanced by the control of early environmental influences, unless there be back of this a whole some recognition of the importance of many physical factors which must be taken into consideration.

For the time being, let us learn to recognize such individuals, if possible, many of whom exist in every community, and by knowing them as such we shall be the better able to account for some of their peculiarities which we could not otherwise explain.

#### DISCUSSION

**Frank J. O'Brien:** I want to congratulate Dr. Gardner on the presentation of this very difficult subject which he has done with such thoroughness and clearness.

The tendency today to substitute new terminology for the group recognized as Constitutional Psychopathic Inferiors is, I believe, an effort on the part of psychiatrists to get a clearer and more accurate understanding of this group. It hardly seems to me, and I agree with Dr. Gardner perfectly in this, that the substitution of new terms per se clarifies to any degree the present situation.

This whole group, however, emphasizes one of the most important advances in our understanding of mental conditions by stressing the importance of emotions and volition in the conduct not only of the pathological individual, but also in the conduct of the so-called average person. The understanding of the causes of conduct has gone through many cycles; superstition held sway for centuries; the organic side had its cycle; only a few years ago a person was "saved" or "condemned" on his mental level or I. Q.

Sad experience with all these has shown how



limited or entirely useless these were in helping us to understand practically the causes of behavior. Studies during recent years have shown more and more the great value of our emotional life and its relationship to both desirable and undesirable behavior. As Dr. Gardner pointed out, the elements involved especially in the undesirable conduct of the constitutional inferior are those of emotions and volition. The fact that so many possible causes are suggested as explaining why the constitutionally inferior act as they do, is indicative that we do not know the real cause, prenatal influences, recessive tendencies whereby dormant factors become dominants, the endocrine system on which we can blame any of our ills because we know so little about the ductless glands, faulty home influences, etc., any and all may play a role. Regardless of the vagueness of the etiology and symptomology, the fact is we have such people with us. Psychiatry is making an effort to understand them more clearly.

There is no class of patients that are more confusing and irritating to the physician, to the court worker, institutional worker, and social worker than that of the constitutional psychopath. They present no specific type of mental reaction such as, for example, defective states do. Some may show symptoms that are epileptoid in character, others psychoneurotic, others cyclothymic, etc., but none present them in sufficient completeness to warrant their being so classified. The most important characteristic perhaps of this group is the childish character of their conduct which, is known as infantilism. As Dr. Gardner pointed out this defect is not like the results known in the intellectual defective for in many instances the constitutional psychopath is not only not intellectually defective, but is often brilliant. Their conduct disorders are evident almost from the time of birth. They can be recognized in their pre-school years as well as in their school life and subsequent social adjustments as being unable to conform satisfactorily to that social group in which they find themselves. The slightest problem or difficulty precipitates in them most extreme and unhealthy conduct. Other people, including ourselves, do change under certain forces, but we do not lose sight of our goal idea. Our whole life is not fundamentally distorted and we do not find ourselves out of harmony in a serious way with the rest of society. There seems to be a lack of a certain something in the makeup of the psychopath that does not permit him to "hold" his balance not only under these conditions, but often before the average problems of every-day life.

Adler, in discussing the neurotic constitution of the psychopathic, states how their goal to compensate for their defect, which they often recognize, is in the physical field, e. g., we saw a young man not long ago who was quite concerned about the frailty of his body; he could

not participate in athletics but he became the cheer leader; another young man also concerned about the frailty of his body, as a youth would go up stairs and holler and scream in order to "roughen" his voice. This latter individual is definitely a constitutional psychopath.

These individuals, therefore, as we trace their lives back into childhood show a constant lack of ability to respond to social demands. If they could live on an island by themselves where no social adaptations were required, most of them very likely would get along quite well but of course this is impractical. They lack truthfulness, decency, and are in general undependable. Because of these traits, with their other emotional instability, they cannot remain in one activity for any length of time.

It is interesting to note that during the war, a significant per cent. of our conscientious objectors, our malingers, and deserters came from this group.

It is very questionable how far corrective measures can be effective, especially through manipulating the environment of this group. They seem to lack the ability to adapt and to adjust. This distinguishes them from others who may show like conduct disorders but do not present symptoms or signs which would make one consider them to be constitutionally inferior as well as socially maladjusted.

The preventive program of psychiatry is very, very young and does not date back much more than fifteen or twenty years. No psychiatrist, I believe, would claim that the present mental hygiene or child guidance clinic program has been able to make any great inroads up to the present time on the prevention of mental disease. However, clinical results both in the work of psychiatrists in private work and of public clinics provide sufficient proof that this program has been very effective in the prevention of delinquency in individual cases. The entire program itself is of too recent origin for any of us to rightfully expect any great proof of what it is accomplishing as evidenced through statistics.

**W. E. Gardner, (in closing):** My purpose in presenting the paper was to call attention to that type of individual who is essentially neither feeble-minded nor suffering from any form of frank psychosis, and yet he is a mental deviate.

The more experience and study I give this type of case, the more convinced I am that the vast majority of all such cases have a developmental fault in their neural mechanism, which would be in keeping with the physical stigmata which are apparent in so many of them. For this reason I am inclined to adopt a somewhat charitable attitude toward the whole group, and believe that most of them do the best they can with the equipment which they have at their disposal.

## PERNICIOUS ANEMIA\*

B. H. SIGLER, M. D.

Owensboro.

In spite of the great progress made in determining the etiology of diseases, we still have some, the cause of which remains unknown.

Among this class is Pernicious Anemia, sometimes called Addison's Anemia and sometimes Bierer's Anemia.

The diagnosis of this disease is comparatively easy, when a typical case with a wide variety of fairly well developed symptoms presents itself.

Such a case has been so ably described by Addison that really no one has attempted to improve upon his masterly description. With your approval, I will quote:

"It makes its approach in so slow and insidious a manner that a patient can hardly fix a date to the earliest feeling of that languor which is shortly to become so extreme. The countenance gets pale. The skin assumes a lemon-yellow tint. The whites of the eyes become pearly. The general frame, flabby, rather than wasted. The pulse perhaps large, but remarkably soft and compressible, and occasionally with a slight jerk, especially under the slightest excitement. There is an increasing indisposition to exertion with an uncomfortable feeling of faintness or breathlessness in attempting it. The heart is readily made to palpitate. The whole surface of the body presents a blanched, smooth and waxy appearance. The lips, tongue and gums seem bloodless. The flabbiness of the muscles increases. The appetite fails. Extreme languor and faintness supervene. Breathlessness and palpitation are produced by the most trivial exertion or emotion. Slight edema is probably perceived about the feet and ankles. The debility becomes extreme. The patient can no longer rise from bed. The mind occasionally wanders. He falls into a prostrate and half torpid state, and at length expires: never-the-less and to the very last, and after a sickness of several months duration, the bulkiness of the general frame, and the amount of obesity present a most striking contrast to the failure and exhaustion observable in every other respect."

However, this classical description does not always hold good. One is apt to see a patient with an extremely low blood count who insists that he is able to carry on his regular duties except for a little shortness of breath.

So, also these cases may be so overshadowed by nervous symptoms or by gastrointestinal systems, that the idea of a blood

disease may be entirely overshadowed.

In fact it is very easy to be completely led astray by these last general expressions, occurring either singularly or in combination.

Pernicious Anemia may express itself as a nervous disease, in which case, symptoms may be confined wholly to the central nervous system.

As a rule, a patient with a fully developed case of Pernicious Anemia is calm and philosophic; however, occasionally marked irritability may be encountered and the inability to secure a restful sleep, is a source of great annoyance. It is stated by some observers that in a small per cent of their cases, the mental symptoms were very pronounced and made reference to maniacal attacks, hallucinations and even delirium occurring as a terminal manifestation.

In a large per cent of all cases, there is a subacute combined sclerosis of the cord, resulting in patchy degeneration, which accounts for the numbness and tingling of the extremities, particularly the lower.

The degeneration in the spinal cord may take either the form of a tabetic, with lightning pains, girdle sensations, areas of anesthesia with the loss of reflexes, or there may be a lateral sclerosis with spastic features and increased reflexes, or as one may plainly see from this sort of lesion, a combination of the two types. All sorts of nervous symptoms may be encountered, depending upon the level of the cord involved. Multiple neuritis is occasionally seen.

In almost every case of Pernicious Anemia, one finds a decided pyorrhea, sore mouth and tongue, which may be either a simple or ulcerative stomatitis.

Almost invariably the appetite is impaired and often to such an extent as to make treatment extremely difficult.

There may be a diarrhea or constipation, persistent or alternating. Pain or discomfort in the epigastrium is often encountered. Flatulence is another factor, quite annoying at times. Severe pain of paroxysmal character should suggest spinal cord involvement.

The gastric juice is very early impaired in Pernicious Anemia. As a matter of fact, most probably before the Anemia starts. All of these cases show an absence of free hydrochloric acid and it is this fact which accounts for the early symptoms of indigestion and dyspepsia of which these patients complain.

The blood changes in Pernicious Anemia are fairly constant, except in marked remissions, when the blood may appear almost wholly normal.

Ordinarily the total quantity of blood is diminished, the coagulation time is increased and a small puncture bleeds freely.

The red cells are greatly reduced in num-

\*Read before Daviess County Medical Society, Owensboro, March 10, 1931.



ber: as a rule one finds a red blood count of two million or less on first examination.

The hemoglobin is reduced, but not in proportion to the red cells, thereby giving a high color index.

The leucocytes are diminished in number, with a relative increase in lymphocytes.

The striking features of the blood picture in this disease are marked alterations in staining properties, shape and size of the red cells.

There is a marked polychromatophilia, which is, by no means, peculiar to this disease: however, the large deeply stained oval or otherwise deformed cell should arouse suspicion. The amount of hemoglobin is reduced in a great number of cells, but in the majority it is increased, and it is this increase especially in the megaloblasts and macrocytes, the large nucleated and non-nucleated red cells that counter-balance the deficiency, and gives the high color index.

Cell deformity is marked in all severe cases. The oval and pear-shaped are rather conspicuous. However, practically every known variety of abnormally shaped red cells may be found when the disease is active.

The diameter of the red cell is increased which is an important factor. There are small nucleated cells and large nucleated cells and the presence, especially the preponderance of the large over the small, along with the high color index, the leucopenia, low red count of deformed and enlarged cells, with the density of hemoglobin increased, cinches the diagnosis. The nucleated cells are not present at all times but repeated examinations will reveal them.

The present facts lead to the belief that Pernicious Anemia is a deficiency disease; a deficiency of a potent substance formed by the action of normal gastric juice on lean meat. This substance which is normally stored in the liver, kidneys, and other organs enables the red blood cells to go on to completion. Without it they can not mature normally, and what few escape are the distorted and immature cells common to this disease.

The gastric juice of these patients shows a complete lack of hydrochloric acid and enzymes. Just why no one knows. So the only possibility of a complete cure of Pernicious Anemia would be to restore to a patient the ability to secrete a normal gastric juice, which at present, no one has much hopes of being able to do.

However, animals with a normal gastric secretion are able to form from food, and store up in the various organs, this potent substance, which can be extracted and when administered to a patient with Pernicious Anemia, enables him to mature and release normal red cells into the circulation. First in the form of reticulocytes which in a few

days drop to normal, and a rather rapid increase in normal red cells, with a rise to normal of the leucocytes.

Naturally with the improved blood picture, there is a marked improvement of the general symptoms.

After two to five days of adequate treatment the patient begins to look and feel greatly improved. There is a rapid increase in strength, appetite and sense of well-being.

The first sign of improvement is a pink flush under the finger nails, which is soon followed by a rosiness of the cheeks and chin and within a couple of weeks an almost normal complexion.

He continues to improve rapidly and by the sixth to eighth week is practically free of all symptoms, other than the neurological, which improve slowly, but not nearly so marked as the general symptoms. Just why no one seems to know.

As a matter of fact, the neurological condition is not so well understood. There is at present, a great deal of work being done with the Vitamin "B" which gives promise of some success, but still far from being satisfactory.

Early exercise with the various therapies seem to give the best results.

There are on the market, two products containing this potent substance, Liver Extract, which is soluble and may be dissolved in orange juice, tomato juice, or in fact most any solvent that may conform to the patient's taste, or if the gastric symptoms are such as to prohibit oral administration, it may be dissolved in warm water and given as a retention enema.

Ventriculin is obtained from the stomach. It is insoluble and practically tasteless and can conveniently be taken on any of the various cereals, or any food, as for that.

Of course the dose of these products will vary with different cases, and one should, from time to time, check up with a blood examination to determine if a sufficient amount is being given and when the symptoms have subsided to determine the least amount that will keep their blood count about normal.

It matters but little how it is administered. The whole day's amount may be given at one time or in divided doses. As a matter of fact, several day's amount may be taken at one time with about the same results as if taken on so many consecutive days.

A little dilute hydrochloric acid after meals will often help, if flatulence is troublesome.

Each of the products has its advantages and its disadvantages. Both are good and when given adequately will render a patient with Pernicious Anemia, symptom free, in from six to eight weeks and keep him free so long as he takes sufficient amounts to enable his red blood cells to mature.

If for any reason, one should discontinue treatment, relapse is almost sure in from two weeks to two years.

So it is very necessary to explain to a patient that the treatment of Pernicious Anemia is a life-time proposition.

## REPORT OF AN UNUSUAL CASE OF HEART BLOCK\*

E. E. BUTLER, M. D.

and

W. B. TROUTMAN, M. D.

Louisville.

G. W. D., white male, aged 47 years, came to office April 17, 1930, with the following complaint: Double vision, notices irregularity of heart action when retires at night, dyspnea at times. States that while putting screen wire on windows he noticed a glimmering in eyes and shortly afterwards noticed double vision.

**FAMILY HISTORY:** Father died, at the age of 80 years, heart disease. Mother died at the age of 75 years, heart disease. Has one brother and two sisters living and in good health; three brothers died in infancy. One sister died, at 28 years, of pulmonary tuberculosis.

**PAST HISTORY:** Usual diseases of childhood without complications or sequelae. Pneumonia, at age of 6 years, severe case. Had influenza in 1918 and also in 1921, severe cases. No injuries, accidents or surgical operations.

**HEREDITARY HISTORY:** Negative for nephritis, malignancy, nervous or mental diseases.

**PERSONAL HISTORY:** Has led a quiet life rarely used alcohol to excess. Formerly a heavy user of tobacco. (Pipe smoking). Has worked hard all his life as a blacksmith. Formerly a big eater, of all types of food. Married at age of 24 years. One child now 24 years of age in good health.

**VENEREAL HISTORY:** Denies all venereal diseases.

**CLINICAL AND LABORATORY FINDINGS:** April 17, 1930. Temperature 98.6°, pulse 66, blood pressure, systolic 120, diastolic 80.

**URINE:** Light amber, specific gravity 1022. Negative for albumin and sugar. Microscopical examination negative.

**WASSERMANN TEST:** Reported negative April 19, 1930, by one of the local laboratories.

**GENERAL PHYSICAL EXAMINATION:** Patient is a fairly well developed and nourished white male. Skin normal; mucous mem-

branes normal.

**EYES:** Left pupil widely dilated, and ptosis of left upper eye lid is marked. Tongue clean and not swollen; no tremor. Teeth have all been extracted and wears properly fitted plates. Thyroid gland not enlarged.

**THORAX:** Respiratory movements full. No abnormal sounds are heard over lungs. No areas of dullness are found on percussion.

**HEART:** Examination April 17, 1930, rate 66. Very slight irregularity, at times. A loud systolic murmur is heard over entire cardiac area but loudest over apex. Apex beat palpable in 6th inter-space one inch outside left midclavicular line. (Note) The heart block had apparently not definitely developed at the time this examination was made.

**ABDOMEN:** Shows no scars or masses. No areas of tenderness or guard. No hernia.

**GLANDULAR SYSTEM:** Negative.

**JOINTS:** Negative.

**REFLEXES:** Negative. Patella tendon, biceps and triceps normal. Rhomberg negative. Other reflexes normal.

**FLUOROSCOPIC EXAMINATION OF THORAX:** Lungs; Apices and lungs field clear. Hilus shadows not enlarged and of normal density. Diaphragm of free mobility, excursion 1 1-4 inches, dome normal. Aorta very broad and noticeably dilated at its arch. Heart much increased in size particularly the left ventricle.

This patient was referred to Dr. Walter Dean on account of the eye condition. The diagnosis agreed upon by Dr. Dean and myself was that this was probably tertiary lues even in the presence of a negative Wassermann test. The patient received a course of intensive treatment consisting of neo-salvarsan, mercury and iodides, and on May 21, 1930, one month after the start of treatment, he was feeling better; pulse rate had changed from 66 to 86 and eye condition was improved. On June 23, 1930, two months after treatment was begun his eye condition had noticeably improved. There was very little dilatation of pupil and ptosis of left eye lid had about entirely disappeared. On that date, however, the first definite symptoms of heart block developed. His pulse rate had declined to 44 beats per minute. He was still at work but complained of becoming dizzy and dyspneic when he stooped to the ground to pick up an object. His pulse rate, however, was noted as 84 on June 25, 1930, two days after it had been noted at 44. On June 26, 1930, pulse 52; blood pressure 140-70. My office record on July 2, 1930, shows that the pulse rate was 52. Eye condition entirely relieved. Dyspnea on exertion. Patient stated that "heart feels heavy."

On July 7, 1930, pulse again 84. Office rec-

\*Read before Jefferson County Medical Society December 1, 1930. Exhibition of patient and electrocardiographic tracings.



ords, July 12, 19, August 6 and 11, pulse ranged from 78 to 84. Patient doing fine. On September 19, 1930, patient returned to office with pulse rate of 42 beats per minute. On October 17, 1930, he began to have spells which he termed sinking spells. Was conscious that his heart would stop beating. Pulse rate became as low as 32 and would sometimes miss several beats. At this time he was confined to bed and I was called several times each day by the family as it appeared to them that he was dying each time he had the spells of Stokes-Adams syndrome. In these attacks he would become somewhat rigid and eyeballs would turn upward and it certainly appeared as though he would die, at any time. Hypodermic injections of 1-100 grain atropin sulphate seemed to be the best remedy as he would get relief in ten to fifteen minutes after an injection and his condition would remain improved for three to four hours.

Dr. W. B. Troutman was called in consultation on October 20, 1930, and two days later he made some electrocardiographic tracings which he will shortly show you. The only comment that I wish to make on this case is regarding the etiology. My first impression of the case was that he probably had a tertiary luetic condition. The dilated pupil and the characteristic ptosis of the eye lid were suggestive. Then the fluoroscopic examination revealed the dilated aorta. Also I was able to obtain a history that his wife had had two miscarriages of unknown cause and later received some kind of injections for her blood by her physician.

After the intensive anti-luetic treatment was instituted the patient's eye condition became noticeably improved and it was over two months before the definite symptoms of heart block made their appearance. This patient for over a week was in a very serious condition but has again shown improvement and is now back at work. Of course the prognosis is very unfavorable.

Dr. Troutman will now show you his electrocardiographic tracings and discuss the case at this time.

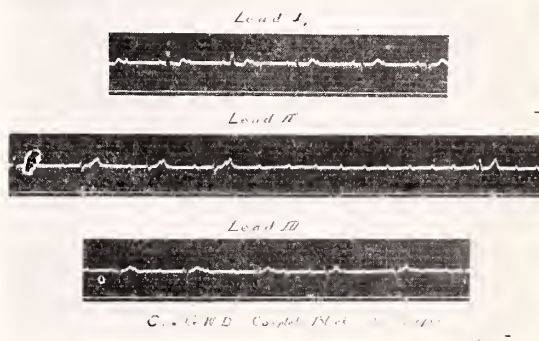
A case of complete Heart Block with Stokes-Adams attacks is to me the perfect example of heart failure; during one of these seizures the ventricles cease contracting, circulation stops and you then have real heart failure.

As to the pathology in these cases; there is some interference to conduction through the bundle of His or auriculo-ventricular node; which lies approximately at the point of juncture of the auriculo-ventricular and the ventricular septum. Normally, an impulse arises at the sino-auricular node in the right auricle, travels through the walls of the auricles, then into the bundle of His and out through the right and left bundle branches

into the ventricles. In this case, the sino-auricular node produces its impulses at about the usual rate of 72 per minute and these impulses travel through the auricular walls but on reaching the bundle of His they are blocked and can go no further; therefore it becomes necessary for the ventricles, if they are going to continue their function, to produce impulses independently.

The Etiology in this case is very probably lues, as quite a number of things which Dr. Butler has mentioned, point to that disease and since the Wassermann on one occasion was negative we would call this a vascular type of lues. In about 50 % of the cases of complete heart block there is a syphilitic background.

On the afternoon of October 22, 1930, I took electrocardiographic tracings at the patient's bedside in his home, the lantern slides of which I will now show you:



Legend: Electrocardiographic tracing of a Case of Complete Heart Block with Stokes-Adams syndrome in Lead II.

You will note first of all, that in all leads there is an independent rhythm and also complete dissociation of the auricles and ventricles; the small or P-waves which show the action of the auricles occur regularly and at about the rate of 72 per minute; the higher peaks, QRS complexes, which denote the ventricular action also occur regularly and at a rate of about 30 per minute, except for a space of approximately 8 seconds in lead II when there was a cessation of ventricular contraction; this is a picture of what occurs during a Stokes-Adams attack. You will note the P-waves are carrying on as usual. In a electrocardiographic tracing of a normal heart there is a definite fixed interval which we speak of as the P-R interval, this tells us that each QRS or ventricular complex is simply a continuation of the preceding auricular impulse or P-wave. In this case, that fixed P-R interval is absent; therefore, there is complete dissociation of the auricles and ventricles. Lastly, I would call your attention to the unusual shape of the QRS com-

plexes; normally, the shape of this complex corresponds very closely to the last three as shown in lead No. 1, however, all other ventricular complexes here shown are split, notched, and widened; with this bizarre type of complex we diagnose arborization or inter-ventricular block, meaning that there is also additional pathology within the ventricles themselves which does not allow the impulses to travel outward through the Purkinje fibres in their normal manner.

Now, as to treatment: we would not treat this type of case with active anti-luetic therapy, by this I mean, we dare not give arsphenamine as it has been determined that most often the arsenicals tend to activate the pathology present in this type of case and may even cause sudden death; we will only give mixed treatment here in the form of mercury and iodides. Your line of treatment here should also be directed toward the abolishment of the Stokes-Adams seizures, therefore we give here a drug which increases the excitability of heart muscle, and the leading drug for that purpose at the present time is barium chloride. I saw this patient having Stokes-Adams attacks about every 15 minutes in October, 1930, he was placed on barium chloride gr. 1-2 t. i. d. and within 24 to 36 hours he was free from these attacks and until this time has had no more, except on one or two occasions he has had a slight momentary dizziness but not a typical attack.

As to the prognosis, Dr. Butler has told you it is unfavorable, and I should say unfavorable not from the standpoint of the complete block alone, but with an added arborization block it indicates rather extensive pathology in the myocardium, and in view of the fact that we must necessarily hesitate in treating the lues actively the condition stands in a good way to progress rather rapidly.

### DISCUSSION

**Emmet F. Horine:** Complete heart block always presents a spectacular picture. The heart rate is usually below 40 per minute. In complete block there is no connection between auricles and ventricles in so far as impulses and rhythm are concerned. There are, therefore, two entirely independent mechanisms present. The auricular rhythm originates from the normal pacemaker or sino-auricular node, the rate being the usual one for the individual at possibly 60, 70 or 80 per minute. These sinus impulses which result in auricular contractions fail to reach the ventricles and of necessity, if life is to continue, an independent mechanism must be set up for ventricular activity. The inherent irritability of the cardiac muscle permits of the initiation of impulses below the blocked area thus establishing an idioventricular rhythm at 30 to 40 per minute.

Apparently Dr. Butler's patient began with

partial block a condition in which some of the impulses originating in the pacemaker pass through to the ventricles. Then as the bundle of His became more and more involved the point was reached when no impulses originating above could get through making it necessary for the ventricles to establish an independent rhythm. Because of the sluggishness of the ventricles in doing this, periods of ventricular standstill occurred with resulting loss of consciousness. The time interval of the ventricular standstill varies in the individual case as well as from case to case. Some patients are seen with complete block who apparently have never had any loss of consciousness. Others have innumerable attacks. If the ventricular standstill is but momentary giddiness or faintness alone will be experienced. With a slightly longer duration consciousness is lost and if still longer a convulsive seizure occurs, the typical Stokes-Adams attack. Cyanosis may be pronounced. Ultimately, in one of these attacks, the ventricles fail to re-establish a contraction focus and death ensues.

Syphilis is apparently the etiological factor in the case reported. There are, however, many other causes of both partial and complete heart block. For example, partial block may be the result entirely of vagal influences or arise from intrinsic cardiac factors. Complete block arises as a result of intrinsic cardiac factors such as arteriosclerotic processes with resulting fibrous myocardial changes, possibly toxic degeneration and edema, spread of infection from valvular involvement, new growths and congenital defects. Occlusion of the nutrient artery of the main stem of the bundle of His may result in sudden and complete block. The lower portion of the main stem and especially the left branch of the bundle of His lies close to the mesial leaflet of the aortic cusps and an infection of this valve might readily extend to and involve the pathway of the impulses sufficiently to produce varying grades of block.

As to the length of time a patient may live with complete heart block, the etiology influences greatly the length of life. Syphilitic etiology is not favorable to longevity. With arteriosclerotic heart block the individual may live in comparative comfort for five or perhaps even ten or more years. Some we have seen have already lived this length of time and cases have been reported where the patients lived for much longer periods.

Atropin may be given in an endeavor to abolish vagal influences and thereby increase conductivity through the bundle of His in partial block. Atropin must be given in full doses if it is to be effective. If given in small doses there is primarily stimulation of the vagus and a resulting increase in the degree of existing block. Incomplete block atropin would be of no value.

Some ten years ago adrenalin was recommended by Parkinson as an agent which would de-



crease the tendency to the Stokes-Adams seizures. Our personal use of this agent was disappointing in several cases. Several years ago barium chloride was suggested since it is known to increase cardiac muscle irritability. Our results have been quite satisfactory, the tendency to Stokes-Adams seizures having been completely abolished. We give one-third of a grain of barium chloride three times daily. The drug may be continued for long periods without apparent harm.

## SYPHILIS OF THE LARYNX\*

OSCAR O. MILLER, M. D.

Louisville.

Syphilis of the larynx, while not rare, is sufficiently uncommon to warrant reporting. It occurred in 4.5% of Symmers' 341 cases. It usually occurs during the secondary stage as mucous patches; they are rather extensive and may involve the pharyngeal wall. Occasionally it may simulate an acute catarrhal laryngitis, with intense generalized inflammation of a dusky hue. In tertiary syphilis gummata may involve the larynx, usually above the vocal cords and on one side, and are resistant to treatment.

In routine chest examinations it is important to examine the larynx, if there are any symptoms referable thereto, hence it becomes necessary to differentiate tuberculous from non-tuberculous lesions. The chest examination becomes the basis for a diagnosis in laryngeal lesions. If the chest is negative for pulmonary tuberculosis the lesion may be considered as non-tuberculous no matter how closely it may simulate it.

In routine dispensary work it is not unusual to have patients referred for examination with hoarseness, cough, dysphagia, to determine whether they have pulmonary tuberculosis or not, and in the laryngeal examinations that are a necessary feature, it is not unusual to observe interesting cases that call for observation before a definite diagnosis can be established.

The present case is interesting because of the unusual hyper-pyrexia that obtained; a feature that led to some confusion on the part of the examiner. After the diagnosis was established, we consulted that master clinician and pathologist, Osler, and found in substance that "fever may be slight or intense and very variable in character; it may be a mild continuous pyrexia or occur with marked remission; a most remarkable form is the intermittent, which is often mistaken for malaria. The fever may reach 105 degrees F., and the paroxysms persist for months. It may suggest typhoid fever or tuberculosis."

Some one has said, "always remember syphilis and tuberculosis," and again as for syphilis, we might keep constantly before us its synonym, "The Great Imitator," especially so since probably eight to ten per cent of our patients have a syphilitic infection. The following case forms the basis of this report.

M. McD. aged 33, male, white married, presented himself at the clinic for examination August 25, 1930. His chief complaint was loss of strength, weakness, hoarseness fever and dysphagia. His general health had been good until seven weeks ago (about the middle of July) although he had been losing weight and feeling somewhat weak prior to that time. He consulted two physicians, and one told him he had "diseased lungs," he complained of languor, anorexia, fever, night sweats, and hoarseness gradually developed. His condition gradually became worse, he had a continuous fever reaching 103° F., his weakness became progressive and marked, and a moderately severe dysphagia developed with only slight hoarseness.

Physical examination was negative for pulmonary tuberculosis.

The larynx presented a greatly swollen apparently infiltrated right arytenoid, covered with a thick white membrane, the epiglottis was swollen and the white membrane extended upward over the right posterior pharyngeal wall and right posterior pillar of the tonsil. The vocal cords were not well visualized but were uninvolved.

Tuberculosis was definitely excluded and malignancy was considered that was secondarily infected. The patient was advised to enter the City Hospital but declined and begged to enter Waverley Hills.

He was admitted to the Sanatorium for observation on August 26, 1930. Urinalysis negative except for a faint trace of albumin. Four sputum examinations negative for tubercle bacilli. Blood count normal, erythrocytes 4,420,000, leukocytes 8,100, hemoglobin 85%, polymorphonuclears 48, lymphocytes 45, mononuclears 6, eosinophiles 1.

Smears from throat showed streptococcus, staphylococcus, diplococcus, and micrococcus catarrhalis, and a few *Bacillus Hoffmani*. Cultures were negative for *Bacillus diphtheriae*. Khan test was four plus.

The patient was admitted with a temperature of 101.6° F., which ranged to 103.6° F. and was continuous in type ranging from 101° to 102° F. On August 29, 1930, neosphenamine grams .4 was given and the temperature declined by lysis. It was 102° on the 30th; 99.6° on the 31st and September 1st; and normal from then on. A second injection .5 gram September 4th and .6 gram September 12th were given.

There was marked clearing of the mucous patches two days following the first injection.

\*Read before the Louisville Medico-Chirurgical Society, January 23, 1931.

Improvement continued and the larynx was practically normal in 14 days. There was later observed a slight edema of the palate on the right. The patient was dismissed and referred to his family physician for further treatment.

## REFERENCES

- Tice's Practice of Medicine, Prior & Co. Vol. 2, p. 420.  
 Cecil's Textbook of Medicine, 1st Edition, 1927, W. B. Saunders, p. 792.  
 Osler's Principles and Practice of Medicine, 10th Edition, D. Appleton & Co., p. 272

## DISCUSSION

**Samuel G. Dabney:** I do not believe the diagnosis of laryngeal tuberculosis is warranted when expert examination of the chest has shown no evidence of pulmonary tuberculosis. This was not formerly my opinion, but I have changed my mind. I now believe that the larynx is never involved except secondarily from the lung. Modern methods of examination have made it possible to establish the diagnosis of pulmonary tuberculosis earlier than heretofore, and it has been shown that laryngeal involvement is secondary. When I suspect tuberculosis of the larynx, I do not make the diagnosis until the chest is first carefully examined by an expert for evidences of a pulmonary lesion.

It is interesting to note that Dr. Miller's patient had fever. It is not uncommon for syphilis to be accompanied by fever. I think Osler mentions this fact in his book. This fever generally responds to antiluetic treatment. Tuberculosis and syphilis may be associated. Failure to find the tubercle bacillus in wiping the larynx is not important.

**Louis Frank:** I would like to ask Dr. Dabney a question: If the appearance of the larynx is not sufficiently characteristic to enable one to make the diagnosis, how can we tell that the individual has tuberculosis? Simply because the patient has a positive Wassermann reaction does not justify the opinion that an ulcer of the larynx is syphilitic in origin. There is no reason why an individual with tuberculosis cannot have a syphilitic lesion of the larynx, nor why an individual with syphilis cannot have a tuberculous lesion.

**Wm. J. Young:** We are quite well aware of the fact that, as someone has already said, it is sometimes impossible to differentiate clinically between tuberculosis, malignancy and syphilis of the larynx. The mere fact that there is a negative Wassermann reaction does not exclude syphilis. In the absence of any evidence of a pulmonary involvement, the laryngeal lesion is probably not tuberculous. A biopsy will exclude cancer, and we then make a therapeutic test. Syphilitic lesions of the larynx are usually tertiary and do not always give a positive Wassermann reaction. We can rely on the history to some extent in trying to make a differential diagnosis, in that tissue destruction in syphilis is rather rapid, in tuberculosis it is moderately so, and in cancer it is the least rapid.

## MODERN CONCEPTS IN NEPHRITIS\*

FRANK M. STITES, M. D.

Louisville.

Just a few years have passed since the centenary celebration of Richard Bright's great discoveries concerning kidney disease.

Many attempts have been made to establish the function of the kidney, but thus far its excretory function is the only one firmly established and osmotic pressure, reaction and other attributes are accomplished by this function.

Kidney disease is better understood today because we have studied its normal function, its anatomy and pathology and also the chemical study of the blood and body fluids. We have gotten away from the teaching of the older clinicians and have linked the work of the laboratory with the clinicians and have drawn away from the gross anatomical descriptions. Little do we care today whether a kidney is red or white, large or small, but we are concerned about the degree of impaired function or renal insufficiency, the blood pressure readings and the ophthalmoscopic findings. We no longer speak of chronic parenchymatous nephritis or chronic interstitial nephritis, but we are interested in the uremia, the meaning of nephrosis and the concepts of malignant renal sclerosis.

The foregoing statements give some intimation of the story from the time of Bright to the present, but it would be a task to list the various contentions and resulting changes by such eminent authorities as Graves, Christian, and others. Our own Delafield was one of the hardest workers along this line. But not until Vollard and Fahr, the one a clinician and the other a pathologist, published their monograph in 1914 was a classification that seems more perfect, accepted. Their classification is a pathogenetic one as contrasted with the functional classification attempted by the French and is the more rational if we accept the unitary function of the kidney. Mueller in 1905 first suggested such a possibility, thinking it desirable to separate inflammatory varieties from degenerative varieties of kidney disease. But the feasibility of such a separation was not proven until the work by Vollard and Fahr in 1914. For convenience, the full classification need only be mentioned as it largely descriptive.

- (a) Degenerative diseases, Nephroses
- (b) Inflammatory diseases, Nephritides
  - 1. Focal Nephritis
    - (a) Focal glomerulo, nephritis
    - (b) Septic (Interstitial) focal ne-

\*Read before the Jefferson County Medical Society, March 2, 1931.



- phritis
- (c) Embolic focal nephritis
  2. Diffuse glomerulo, nephritis
  3. Arterio-sclerotic disease, Sclerosis
    1. Benign hypertension
    2. Combination form, Sclerosis plus nephritis

In order to avoid misunderstanding and that a clear concept may result, it seems wise to emphasize to a limited extent the above classification, particularly the three major divisions, degenerative diseases, inflammatory diseases and arterio-sclerotic diseases.

Recent literature has abounded in a description of nephrosis, and as is true of any new terminology, some review is of distinct advantage. There are several types of nephrosis but those more commonly met with are:

1. The kidney of pregnancy, which is recognized clinically by albuminuria, edema and frequently eclampsia.
2. The amyloid kidney, associated with suppurative conditions of the bone, tuberculosis and osteomyelitis of non-tubercular origin.
3. The kidney in mercuric poisoning which presents the necrotic stage of the disease.

There is one common factor in all of these conditions, namely involvement of the tubules with resulting degeneration. This description would lead one to think that nephrosis runs a definite clinical course with no resulting change in renal function, cardiac hypertrophy or increase in arterial tension. However, few cases are so clear-cut and more often we see the merging of one type into the other, thus causing a confusion that is indeed difficult to clarify in studying any case of renal disease. This is best expressed in the words of Service of Clifton Springs, N. Y. "One may say in general that inflammatory processes affect the glomeruli, and the tubules become involved secondarily; while the degenerative processes affect primarily the tubules and the glomeruli secondarily. It is important to realize that confusion must always exist in diagnosing this disease, since in most cases one type of lesion becomes engrafted on the other. For the same reason, nephrosis in its pure state is comparatively rare." Or in a more condensed sentence, according to Fishberg, "Nephrosis may be defined as a disease characterized anatomically by primary degenerative lesions of the renal parenchyma."

The mildest cases of nephrosis show only slight traces of albumin and this group when studied is always the degenerative type, such as those associated with febrile conditions of long standing or toxemia as occur in diabetes from the storage of glycogen or in pernicious

anemia from the deposit of iron. There are several other agents which might be mentioned but which need no emphasis, namely jaundice, use of phosphorus, arsenic bismuth, mercury and many others. In small doses these last drugs have only slight damaging effect, but mercury in toxic dosage causes quite a different pathology, classified as necrotizing nephrosis. The prognosis depends principally upon whether the patient becomes anuric, although death may result from a colitis and not from the nephrosis.

The types of nephrosis mentioned above might be considered as the acute types and are seen fairly frequently, but there is also the chronic type of nephrosis, the existence of which is a mooted question. But such men as Epstein of Mt. Sinai, Holt, Howland and others have published a large series in children and much smaller series in adults that seem to fall in this classification, namely those cases having edema and copious albuminuria in the absence of increased tension, chemically showing changes in the colloids of the blood plasma, and pathologically showing degenerative lesions in the parenchyma. Occurring principally in childhood and early adult life and when seen in older people usually associated with lues, gives us about the only differential points from the nephrotic type of glomerulo-nephritis.

Usually benign in nature, death occurring most frequently from a secondary infection; gives us a fair prognosis. The luetic cases respond to specific treatment and the non-specific cases usually require a high protein diet (contrary to the opinion of some authorities), endocrine therapy and rest with occasional aspiration of the ascites.

Amyloid nephrosis is rather uncommon, usually associated with long chronic, suppurative conditions or such bone disease as osteomyelitis. It is characterized by varying amounts of albuminuria with few or no casts in the urine. The symptoms are not marked, anemia, edema and manifestations of amyloidosis of other organs. The primary disease usually is the determining factor in the prognosis as well as in the line of treatment.

Briefly, we have outlined the degenerative diseases that occur under the more recent classification and we next consider the ones which are seen most frequently, namely the nephritides or inflammatory diseases of the kidney.

The inflammatory diseases of the kidney are divided into two main groups, namely local nephritis and diffuse glomerulo-nephritis, or in the older terminology acute interstitial and chronic glomerulo-nephritis. The acute type may be subdivided on an etiological basis, into:

1. Focal glomerulo-nephritis
2. Septic focal nephritis
3. Embolic focal nephritis.

These terms are descriptive and in a paper of this type need little elaboration as there has been only a small amount of progress made in the recent work in the nephritides.

Focal nephritis is described by Fishberg as that condition which develops during the course of various infections, manifested by febrile albuminuria, blood, larger amounts of albumin and numerous casts. Edema and hypertension are absent and impaired renal function is quite rare. Clinically there is little or no evidence of renal disease and the primary disease is not notably influenced. Volhard differentiates this form from acute glomerulo-nephritis by the fact that focal nephritis occurs during the height of an infection and waxes and wanes with the periods of the disease, while acute glomerulo-nephritis occurs when the infection is waning and persists after the infection has subsided. This differentiation is not accepted by all authorities.

Such infections as scarlet fever, pneumonia, typhoid, malaria, streptococcal infections and a few rarer diseases, as relapsing fever, are most frequent causes of this type of nephritis. The method of causation is not entirely clear, but due to the fact that the organism may be cultured from carefully collected specimens of urine and also the demonstration of the offending organism in the autopsied kidney, makes one feel that method of attack is direct on kidney tissue.

As a rule there is little or no impairment of renal function, albumin is found in varying quantities, blood cells are usually considerably increased, only a few hyaline and granular casts are present. The diminished urinary output is occasioned by the fever, and edema and hypertension are absent. The prognosis is favorable and treatment should be directed to the primary condition.

Complicating, especially the secondary streptococcal invasions in the acute specific infectious diseases of childhood, is another type of nephritis which is best called an acute interstitial type. This is seldom diagnosed during life and most cases terminate fatally. Autopsy reveals the pathology, for no characteristic manifestations occur during life, and those cases recovering are never diagnosed. From the pathological findings it would seem that decapsulation might offer hopes of recovery, but the diagnosis is so nearly impossible to make with certainty that this has not been tried.

Of the focal nephritides the multiple glomerular embolization as the result of sub-acute bacterial endocarditis needs mentioning. The persisting of hematuria from an

undetermined cause should always suggest careful search for this disease.

Besides the focal nephritis which we have above described is the chronic glomerulo-nephritis, today recognized as a pathogenetic unity in contrast to the early classification of acute, subacute, and chronic glomerulo-nephritis, which are but steps in a single condition, chronic nephritis. Much could be written about why certain acute cases do not recover completely, but continue to show albumin even when symptom-free. Mismanagement in this stage results in a disagreeable period of anemia and weakness which can be avoided if diet is not too restricted and the patient is observed for vascular changes which are sooner or later to appear. When discovered, treat these cases as circulatory cases and not as potential uremic cases. Frequent checks on the concentration tests and also the two-hour test as to the amount of solids excreted during the 24 hours will show the progress of the disease. As the atrophy in the secretion units increases, and ultimately a majority of the tubules and glomeruli are gone, there is a tremendous flood of pale urine through the remaining units, requiring an elevated pressure to put it through. Hourly collections show little change during an entire 24 hours, the voiding is as frequent during the night as during the day, and then with failure of the vascular system and reduction in pressure, uremia results. This end-stage usually is reached in less than two years after the compensatory break occurs. As a rule these cases present no difficulty in diagnosis, there is typical edema, hypertension, impaired renal function, hematuria, etc. but occasionally only one or two of these findings are evident and differentiation from other conditions is necessary. Such conditions to differentiate are chronic nephrosis and essential hypertension, especially.

We have already mentioned the differential points in chronic nephrosis, namely edema, copious albuminuria, doubly refractive lipoids in the urine, decrease in protein and increase in lipid content of the blood. Differentiation from essential hypertension is frequently assisted materially by the use of the ophthalmoscope, and in chronic glomerulo-nephritis this study is quite necessary. Hypertensive retinitis ultimately present, gives an idea as to the prognosis. We have become accustomed through many years to speak of the ophthalmoscopic findings as albuminuric retinitis, but recent work considers this a misnomer for in reality the albuminuria is minimal or even occasionally absent and the true pathology is not an inflammatory but a degenerative process. Therefore we are speaking of the ocular changes as hypertensive retinitis and some authorities even suggest "retinopathy" to



denote the better description of the pathology. This condition occurs in all forms marked by hypertension and also in lead poisoning showing no renal change. It is, however, most common in glomerulo-nephritis and essential hypertension in the malignant stage. It is early recognized by clouding of the margins of the disks and narrowing of the arteries. The earliest symptom is impaired vision, total blindness is quite rare. The worst complications are detached retina, secondary glaucoma and hemorrhages.

Ocular changes are usually seen late and the prognosis at once becomes grave, two years being an average period for life.

It is impossible to mention diffuse glomerulo-nephritis without entering upon some study of the vascular changes in the kidney, and yet I have withheld a discussion of arterio-sclerotic diseases of the kidney to a last place. In this disease signs referable to the kidney are usually late in their manifestations. Arterio, and especially arterio-sclerosis of the kidneys, develops in direct proportion to the severity of the vascular lesions and of course there is a proportionate contraction of renal tissue. Except for a trace of albumin and an occasional hyaline cast this disease is not manifested clinically, and unless a careful and periodic study of all hypertensive cases is made the renal disease is often missed. At least yearly function tests should be made of all cases, specific gravity determinations in the form of concentration tests and blood chemistry are also necessary to determine the progressive renal changes. Single determinations are of little value, but repeated checks at 6 months or yearly intervals give the best picture. As only a relatively small number of hypertensive (essential) cases terminate as renal deaths we can conclude that this lesion is not manifested until late.

Contrasted to the above description of sclerotic renal disease we frequently have a true inflammatory nephritis with marked albuminuria and edema accompanying an essential hypertension. This may be superimposed on a hypertension or the hypertension may be secondary to the nephritis. Differentiation may be quite difficult. This difficulty is understood when we realize that hypertension, cardiac enlargement and retinal changes may occur in both conditions, but in the sclerotic type of renal disease there is rather marked reserved renal efficiency.

#### DISCUSSION

**Harry S. Frazier:** I am sure we have all enjoyed Dr. Stites' paper. The classification of renal disease he has given us was proposed by Vollard and Fahr in 1914, but only recently generally adopted by medical schools and teaching hospitals. The essential features have been

described by the essayist. Nephrosis is used to represent degenerative lesions with tubular involvement; this is a comparatively new term and one that takes care of a wide variety of renal lesions. Christian also proposed a classification some years ago which was intended to simplify matters; but unfortunately it was too simple, he merely placed all cases of renal disease under two headings, viz.: acute nephritis with and without edema, and chronic nephritis with and without edema. There has been much good work done on the question of nephritis during the past few years. This entire subject is just as much of a challenge now as it was one hundred years ago when Bright published his paper. Nephritis continues to be one of the diseases that most often causes death. Much time has been devoted to kidney function tests; we also have means of determining the blood chemistry, as well as the ordinary microscopic examination of the urine. All these things help us in making the diagnosis and are important in prognosis.

As to treatment: Rest is still an important feature, as it has always been, but much will depend on whether we are dealing with an acute or chronic process when it comes to preserving the life of the individual.

With reference to diet: A low protein diet is important, but we must not eliminate meat entirely unless there is evidence of nitrogen retention, because we may increase the anemia already present and make bad matters worse. There have been some good results in uremia by the use of concentrated solutions of glucose intravenously. We may use 35 per cent glucose in saline solution introducing 100 c. c. to 200 c. c. into the vein. This will often cause diuresis which will assist in eliminating poisonous by-products.

The essayist spoke of circulatory failure: Of course, the kidney cannot do its work in the face of an exhausted circulation. In these cases a diuretic of the theobromine group (diuretin) seems most useful. The mercurial diuretics,—salyrgen and novasurol promote a marked elimination and contribute somewhat to the comfort of the patient, but their continued use only hastens a complete functional failure.

I believe most cases of acute nephritis are of infectious origin, the offending bacterium being usually the streptococcus. In these cases we can accomplish something by continued efforts to control the infectious disease, to find and eliminate foci of infection, and by frequent study of the urine. In infectious disease, especially in streptococcic infection, the urine should be examined at frequent intervals. In this way probably quite often cases of focal nephritis or mild acute glomerulo-nephritis will be discovered.

**C. Dwight Townes:** In the course of kidney disease the eye may be affected in several ways, chief of which is the presence of retinal changes,

the so-called albuminuric retinitis, renal retinitis, or nephritic retinitis. The latter is perhaps a more appropriate term for the changes seen, since cases of retinitis are frequently noted in malignant disease of the kidney, and since the changes in the retina are in no way dependent on the presence of albuminuria. The existence of retinal change is directly dependent on the time in the course of disease that the eye examination is made. Naturally, if the eye is examined early in the disease we will not see many cases of retinitis. On the other hand, if, the eye examination is made late, immediately preceding death, the incidence of retinal changes will be surprisingly high.

Retinitis occurs chiefly in males, because kidney disease is more often seen in males, in the proportion of three to one, according to the figures of most authors. Renal disease sometimes occurs in children, but the average age when retinal disease develops is about 40 years. The connection between nephritis and retinitis is not definitely known. However, such a connection has been continuously reiterated since the first review of kidney disease appeared in 1827, and especially since Helmholtz gave the first ophthalmoscopic description in 1859.

Apparently there are two factors which are responsible for changes in the retina. One is the toxic factor due to altered condition of the blood which may consist of toxic material causing both kidney and retinal disease. The second factor is a vascular one producing disease of the blood vessels. The consensus of opinion seems to be that the majority of cases of retinitis are due to a combination of these two factors. Some French authors have reported the results of their studies in nitrogen retention suggesting that there is a direct relationship between retinal changes and the retention of nitrogen in the blood. Much important work by physiologists throughout the world has recently created the impression that the blood vessels, particularly the capillaries, are responsible for changes that occur in the retina. Capillary function depends on the integrity of the capillary wall, permitting free interchange between blood and body tissues of diffusible substances, but retaining the formed elements of the blood. Capillary dysfunction resulting in disease of the capillaries permits escape of formed elements into the retinal tissues resulting on the one hand in fibrous exudate, and on the other hand leakage of whole blood. Retinitis is nearly always present when there is considerable increase in blood pressure, but it may be absent when the blood pressure is high. As nephritis progresses and the more severe become the symptoms and the higher the blood pressure the more frequent is the occurrence of retinitis. If we exclude cases of nephritis in pregnancy we can agree with Dr. Stites' conclusion that prognosis is rendered more grave by presence of retinal disease. A study of reported

cases shows that only about 60 per cent of the patients live longer than two years after retinitis develops in the course of chronic nephritis. There are two types of retinitis which may appear in the course of kidney disease. One is the toxic type associated with edema and the presence of numerous patches of exudate about the macula with comparatively few hemorrhages. This type of retinitis is most frequently seen in nephritis that shows a predominance of toxic element. The second type of retinitis is chiefly vascular, with changes in the blood vessels, hemorrhages and formation of the star-figure at the macula. This type of retinal disease is most frequently found in chronic nephritis where blood pressure is high and arterio-sclerosis of the kidney is marked.

Considering the third classification Dr. Stites mentioned, arteriosclerotic disease of the kidney, hypertension, etc. In these cases retinal change has by no means been definitely determined. In this type we do not find sclerosis of the retina nor any disease of the arteries. There is essential hypertension with spasm of the retinal vessels. It requires a very careful examination to detect these changes, consequently we are not positive of the exact changes in the retina in essential hypertension brought about by arterio-sclerosis of the retina. Foster Moore claims as a diagnostic point in arteriosclerosis of the retina, changes in the vessels and the appearance of small deposits around the area, exudation without hemorrhage.

There are a few other less important eye findings seen during the progress of kidney disease. One is exophthalmos. A very interesting study was recently reported from Johns Hopkins Hospital in which exophthalmos was found to be present in cases supposed to be due to edema. Sometimes in nephritis there is a general hemorrhagic tendency, that may result in hemorrhage into the choroid, iris, orbital tissues, optic nerve sheathes, etc.

**A. J. Miller:** I have enjoyed Dr. Stites review very much. I think anyone who searches the literature and presents such an excellent paper deserves to be commended. I wish to make one remark which is not in accord with current opinion. I think we are in error in continuing to think that hypertension is in any way the result of kidney damage. It is true that kidney damage is very often associated with hypertension, but I do not believe we have sufficient evidence to say that hypertension is caused by kidney damage. I am aware of no clinical evidence nor necropsy statistics which would substantiate that idea; and I know of no experimental work which will support it. Now and then we see in the literature a description of work showing that kidney damage does not result in hypertension. One of the things that led us into this false belief is the fact that hypertension will increase the work of the kidney. This is a matter of common observation.



If the blood pressure is raised the kidney works harder, and as tension is raised the amount of blood sent through the kidney is increased. However, the converse is not true.

**Adolph O. Pfingst:** The relation between renal disease and the eye has become such an important biological study that I wish to add a few words to what Dr. Townes has said in his discussion. Since the introduction of the ophthalmoscope by Helmholtz about the middle of the last century it has been known that retinitis is frequently evident in constitutional disease. In our earlier study of the fundus the white spots observed on the retina were considered pathognomonic of kidney disease; however, we now know that these spots occur from other causes.

Dr. Townes' statement about retinitis albuminuria is interesting and important. Ophthalmologists of the country have been trying for several years to eliminate this term from the nomenclature, because it is not the albuminuria but the underlying cause of albuminuria which has to do with changes in the retina. It is now believed that retinal changes are the result of degeneration due to toxic influences probably affecting primarily the vascular system. The retinal spots so often observed, and which we formerly believed were due solely to kidney disease, are seen in diabetes, in hypertension, in leukemia, in septicemia, in brain tumor, in various stages of lues.

Regarding the prognostic significance of changes in the retina due to renal disease, I would say that it is much more grave when compared to the prognosis in other diseases where similar retinal changes occur. In chronic cases the term of life is of short duration after discovery of the retinal changes. However, I know it to be a fact that the patients frequently live longer than two years. I have seen cases where the patients lived six years after the retinal spots and hemorrhages had been present. I would differ with Dr. Stites in that retinal changes always appear late. I have seen changes in the retina before any other evidence of renal disease could be discovered.

In acute cases such as we see in the exanthematous diseases of childhood and in pregnancy the prognosis for life, as well as for visual function, is favorable.

Frequently we are called to see patients with nephritis on account of amaurosis in which the ophthalmoscopic examination shows no fundus changes whatever. In these cases it is evident that a toxic condition has involved the optic centers and if these patients recover from their renal disease they do so with restoration of perfect vision.

**Wm. T. McConnell:** I believe physicians are now quite generally agreed that the albuminuria of the toxemia of pregnancy is not the result of kidney disease. The kidney is the victim rather than the cause. Retinal changes

that cause temporary visual disturbance are edematous rather than hemorrhagic in type. Our chief interest lies in differentiating between these conditions in making our prognosis. Where the renal and retinal changes occur as the result of acute toxemia of pregnancy the prognosis is usually good. There is no permanent kidney nor retinal damage. The patients recover and may live a long time without recurrence of the retinal condition. When primary kidney disease is associated with hemorrhagic retinitis the prognosis is not so favorable, and the patient is more apt to have a recurrence with succeeding pregnancies.

## TOXIC ADENOMA OF THE THYROID\*

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The symptom complex commonly known today as hyperthyroidism was first ascribed in 1886, by Moebius, to a pathologically increased activity of the thyroid gland. The concept still prevails.

The syndrome of hyperthyroidism may be quite varied, also the pathology of the gland. There are those who maintain that the differences are merely variations and degrees of one and the same clinical and pathological entity, this view being championed by Crile, Rienhoff, Lewis and others. On the other hand, Plummer and his followers believe that thyrotoxicosis may be divided into two separate and distinct entities, although they may be combined in the same individual. These two divisions are, first, exophthalmic goiter and secondly toxic adenoma which has also been called by Plummer "adenomatous goiter with hyperthyroidism," and "hyper-functioning adenomatous goiter," and by Rienhoff "nodular goiter with hyperthyroidism," although he does not admit the dualistic nature of the disease.

Thyroxin, the active principle of the thyroid gland, was first isolated by Kendall in 1914. Each molecule of thyroxin contains three atoms of iodine or 60 per cent by weight. The chief function of the thyroid, so far as we know, is the production of thyroxin. The exact action of thyroxin is unknown but evidence indicates that it is used as a catalytic agent in the processes of oxidation throughout the body.

Plummer has shown that "the human body contains approximately 14 milligrams of thyroxin, an elevation or depression of approximately 1 milligram in the thyroxin content of the organism causes a corresponding shift of 2.8 per cent in the basal metabolism. The daily intravenous dose of thyroxin required to hold the basal metabolism

\*Read in Symposium on Toxic Goiter before the Jefferson County Medical Society, March 16, 1931.

of a thyroidless individual at normal and hence the daily discharge of this agent from the thyroid is approximately 0.75 milligrams." He also states "2 milligrams of thyroxin a day may hold the basal metabolism 20 to 30 per cent above normal, 3 milligrams a day may hold the basal metabolism 50 per cent above normal."

These observations led to the conclusion that hyperthyroidism is due to the increased production, and concentration of thyroxin in the tissues sufficient to maintain the basal metabolism above normal. And, all the symptoms of pure hyperthyroidism are those which must accompany and are dependent on a continued increase in basal metabolism.

Adenomatous goiter is endemic, having the same geographical distribution as diffuse colloid goiter, and often the adenomas may develop in colloid goiters. The nodules may be encapsulated (true adenomas) or non-encapsulated (adenomatosis.) Both are included under the term adenomatous goiter. They may be large or small, single or multiple, and may be discreet or scattered diffusely throughout the gland.

There are two types of adenomas, fetal and adult; the acini of the fetal type having no colloid containing lumen, while the adult type is composed of groups of acini containing colloid and in many instances cannot be differentiated from the acini of surrounding normal tissue. We may find all intermediate stages between fetal and adult types. Woelfler maintained that adenomas develop from fetal rests. Adenomas may undergo degenerative changes and be classified as colloid hyaline, calcified, hemorrhagic or cystic.

The same stimulus that is responsible for the development of diffuse colloid goiter is probably the cause of adenomatous goiter. The occurrence of both may to some extent be prevented by the prophylactic use of iodine. Iodine deficiency is generally considered to be the chief, but probably not the only, causative factor.

Adenomatous goiter is usually manifest at about the age of 20. It is on the average 15 to 18 years after its appearance before there is evidence of hyperthyroidism. As the time of its duration increases there is increasing tendency to hyperfunction. A small proportion of adenomas will develop hyperthyroidism after the use of iodine in an attempt to reduce the size of the gland, although the majority will give no history of iodine therapy. The cause of the change from normal function to hyperfunction is not known.

There has been an unsuccessful attempt to correlate the clinical and pathological picture of hyperthyroidism. While this is almost always possible in exophthalmic goiter where we find diffuse hypertrophy and

hyperplasia, it is not true of adenomatous goiter. Areas of hypertrophy and hyperplasia either intra-adenomatous or extra-adenomatous may be found in a large percentage of adenomatous goiters both without hyperthyroidism and with hyperthyroidism. While the proportion will be higher in the hyperthyroid cases, the difference is not definite enough for the pathologist and the clinician to correlate their findings.

The hyperthyroidism associated with adenomatous goiter is in every respect identical with that produced by the administration of an excessive amount of thyroxin or desiccated thyroid to an otherwise normal individual. All evidence indicates that the hyperfunctioning adenomatous goiter liberates into the system an excessive amount of normal thyroxin. Resection of the adenomatous tissue or the withdrawal of the excessive supply of thyroxin will restore the individual to normal.

The symptoms of hyper-functioning adenoma or adenomata of the thyroid are all dependent on a sustained increase in basal metabolism. The condition is almost always very insidious in development, and slow and gradual in progression. The gland, whether with or without hyperthyroidism, is characteristically asymmetrical and one or more nodules may be felt. It often extends retro-tracheal or substernal, and symptoms of pressure on the recurrent laryngeal nerve, the trachea, or the esophagus may be present.

The toxic symptoms may be grouped as follows: (1) Cardio-vascular changes associated with an increased minute-volume flow of blood. The common findings are tachycardia, palpitation, dyspnea, cardiac enlargement, an increase in blood pressure and notably of the pulse pressure. Depending on the intensity and duration of the hyperthyroidism and the vulnerability of the heart, varying degrees of cardio-vascular degeneration may be present with evidence of cardiac dilatation, auricular fibrillation and of decompensation.

(2) There is an increase in appetite and at the same time a loss in weight and strength due to the increased rate of oxidation. There is a lack of endurance, or early fatigue.

(3) There is an intolerance to heat, or inversely, an increased tolerance to cold; and excessive perspiration, due to the increased production and elimination of heat.

(4) Nervous phenomena; tremor, restlessness, irritability, insomnia, headache, due to stimulation and irritation of the nervous system. Psychoneurosis may be associated but the relation is uncertain. It is more likely a cause of the hyperthyroidism than caused by it; however, the occurrence may be coincidental. Exophthalmus, stare, gastro-intestinal crises, the peculiar hyper-excitable nerv-



ous condition, and thrills and bruit over the gland commonly found in exophthalmic goiter are absent.

The diagnosis is made on the symptoms and findings described above and by the determination of a basal metabolic rate of +15 or higher. Also, any patient with an adenomatous goiter and suggestive symptoms, and a basal metabolic rate which is persistently higher than +10, should be considered as hyperthyroid.

The treatment is surgical. The prophylactic treatment should consist of the surgical removal of all adenomatous goiters after the age of 30, because of the increasing risk of hyperthyroidism developing. And, aside from this risk, Wilson has shown that 2 to 3 per cent of all adenomatous goiters resected at the Mayo Clinic are malignant, another good reason for removal, whether with or without hyperthyroidism.

#### PREOPERATIVE AND POSTOPERATIVE TREATMENT\*

ULY H. SMITH, M. D.

Louisville.

Probably the greatest contribution to our armamentarium in preparing hyperplastic thyroid cases for operation was made by Plummer when he advocated the use of Lugol's solution. Prior to that time, polar ligation, x-ray and radium radiation, the injection of quinine urea hydrochloride and sclerosing agents into the thyroid gland were routine procedures. The problem of preparing toxic thyroid patients for operation has resolved itself into these factors, viz., rest in bed, Lugol's solution, nutritious feeding and mild sedatives.

1. Rest in bed relieves the myocardial strain and favors the disappearance of the edema of the extremities.

2. Neutralization of the excessive thyroxin by the judicious use of Lugol's solution diminishes the chief toxin which is responsible for the tachycardia, hypertension, high pulse pressure, tremor, restlessness, excitability, nausea, muscular weakness and diarrheas.

3. Mild sedatives, the best of which are probably the bromides and the barbituric acid salts, have a quieting effect on this class of patients who find it difficult to restrain themselves and are usually somewhat intractable.

4. Nutritious feeding completes the picture by improving the general body resistance.

It is not my object to discuss diagnosis in this short outline of pre-operative and post-operative treatment, but I find myself un-

able to refrain from mentioning basal metabolism rate. The basal metabolism determination, with subsequent check-ups, is probably of as much value as a true index of toxicity and as a differential diagnostic agent as Lugol's solution is a preparatory agent. A basal rate should be determined before treatment is commenced and subsequent determinations, at intervals, in order to get confirmation of apparent improvement.

#### PRE-OPERATIVE TREATMENT OF HYPERPLASTIC CASES

1. A basal metabolism rate is determined.

2. The patient is put to bed, getting up only to use the commode.

3. Lugol's solution is given in 15 to 20 minim doses by mouth three times a day. This distasteful drug is probably best disguised in grape juice.

4. Mild sedatives, such as previously mentioned, to insure rest and keep patient composed.

5. The patient is placed on a full diet unless there is some co-existing disease which might prohibit certain types of foods.

6. At the expiration of 10 to 14 days, if the clinical improvement is such that one might believe that the patient is ready for operation, a check metabolic rate may be made.

There is a diversity of opinion concerning the use of Lugol's solution. Some authorities agree with us, while some eminent surgeons claim that one to three minims per dose is just as effective. On one point, however, most of us agree that while there is a marked improvement for a period of about three weeks, after which the administration of Lugol's solution seems to lose its effectiveness.

#### PRE-OPERATIVE TREATMENT OF TOXIC ADENOMATA CASES

The toxic adenomata, while giving a clinical picture somewhat similar to the hyperplastic toxic thyroid, require a somewhat different preparation. The tachycardia-edema-tremor syndrome is usually present and responds in a measure to rest in bed, diet and sedatives, but the administration of Lugol's solution exerts little if any benefit and in those cases in which benefit is noted, tissue examination will reveal hyperplasia. Polar ligations are of no value. Digitalis is used only when definite myocardial changes are present and when there has been fibrillation.

#### POST-OPERATIVE TREATMENT OF BOTH TYPES

After operation, regardless of the type of anesthesia or analgesia used, it is frequently observed that these patients are either unable to swallow to any extent or if able to swallow nausea and vomiting are produced or exaggerated. Nevertheless, they should be allowed to take fluids per os because they need

\*Read in Symposium on Toxic Goiter before the Jefferson County Medical Society, March 16, 1931.

fluids to dilute their toxemias and to prevent dehydration and because patients get a certain satisfaction in taking fluids in this manner and frequently the fluids are well borne. For some reason, in our experience, these patients will not "take up" fluids when given per rectum. We have not attempted proctoclysis for the past several years. The fluids accumulate in the rectum without being absorbed and after 2 to 4 hours the patient will ask for a bed pan or involuntarily expel the fluid. We have adopted the practice of starting hypodermoclysis as soon as the patient has been returned to bed, giving 2 to 5 liters of fluid in 24 hours. This may be continued for several days, dependent upon disappearance of nausea and ability to swallow without too much pain.

While collapse of the tracea is comparatively rare, there should always be a tracheotomy outfit held in readiness. For marked tracheitis associated with dyspnea we employ an electric steamer in which may be volatilized compound tincture of benzoin, camphor, alcohol, eucalyptus and other drugs of this character.

Morphine, by hypodermic, should be given liberally to control pain and restlessness. It is better to narcotize these patients for the first 24 to 48 hours than to permit them to become extremely restless or to suffer. No trouble is experienced when the morphine is withdrawn. Here, as before the operation, barbituric acid salts are of distinct value.

To control post-operative fever we employ ice caps applied to the head, over the heart, on the abdomen and thighs. Ice enemata may be used and in extreme cases ice water tub baths have been suggested. Aspirin in 10 grain doses per oreum or per rectum is beneficial.

A semi-sitting posture, supported with a back-rest seems to be the most comfortable attitude for the first three or four days. Light food is given as soon as the patient can swallow and has a desire to eat.

Dressings are changed daily or when soiled by drainage or vomitus. All sedatives can usually be withdrawn by the 4th or 5th post-operative day. Patients are allowed to get out of bed for short periods when the pulse and temperature fall below 100, usually on the 3rd or 4th post-operative day.

## OPERATIVE TECHNIQUE FOR GOITER\*

JOHN R. WATHEN, M. D., F. A. C. S.

Louisville.

In a symposium upon the subject of goiter, this paper, following as it does the preparatory treatment, should properly begin with the night before the operation, discuss the types of anesthetic to be used the next morning and the technique best suited to this type of operation needed for the various pathological conditions found.

It is now very universally agreed that the barbituric salts in some form should be freely used to allay the apprehension of these nervous patients. While these drugs have little or no anesthetic properties, they at least lessen the necessity for more profound narcosis which we formerly were forced to use.

Some prefer elixir of veronal, some amytal either intravenously or by stomach, some nembutal and many others luminal.

After several years of practical experience with all types, I have finally returned to the old and well established elixir of veronal. Veronal in this form, we have found does not reduce the blood pressure to any appreciable extent as does luminal, can be given by rectum and places the patient at all times in only a groggy or sleepy condition, rather than unconsciousness as does amytal, thus always allowing us to talk to the patient and avoid any possible injury to the recurrent laryngeal nerves.

We advise, the night before the operation, about 15 grains of elixir of veronal depending upon the weight and condition of the subject. At seven o'clock the next morning about one half the dose given the night before will place the subject in excellent condition.

One hour previous to the operation, we give morphine 1-4 grain as these patients with toxic goiters tolerate morphine especially well.

The great majority of goiter operations can be performed after the above preparation with a proper nerve-blocking anesthesia using 1% novocaine (Metz) and a small amount of adrenalin, not over six drops of 1-1000 solution to every 100 c. c. of novocaine solution. It is well to prepare about 200 c. c. of this anesthetic solution, but you will seldom need over half of that amount.

The proper nerve injection is in my opinion more of an art than a science, as I have watched good operators obtain very poor results as regards the production of complete anesthesia; but the final test is whether the operator can finish the complete operation

\*Read in Symposium on Toxic Goiter before the Jefferson County Medical Society, March 16, 1931.



without resorting to any general anesthetic, as nitrous oxide,

Both the cerebro-spinal and the sympathetic nerves should be injected; but the latter nerves, the sympathetic system, are seldom injected by most operators, thus accounting for their failures.

We do not wish to be misunderstood as laying down a hard and fast rule that no general anesthetic should be used, as that will always be best determined by the operator's personal experience, but in bad heart cases as auricular-fibrillation a general anesthetic is well to avoid.

The cervical plexus block is accomplished by the injection of the nerve trunks at the level of the point of exit of the cutaneous nerves, a tender point corresponding to the middle of the posterior border of the sterno-mastoid muscle. Another injection is made from the center of the neck, anterior aspect, at the level of the superior poles, over to each sterno-mastoid muscle. The low collar incision site is the last injected and these constitute superficial anesthesia. Wait about fifteen minutes before starting the operation.

The usual collar incision is made, the skin dissected to above the hyoid-bone and a self retaining retractor placed in position. The ribbon muscles, the sterno-hyoids are separated in the mid-line and divided high to preserve their nervation, the hypoglossi nerves. The clamps upon these muscles afford good retractors and better exposure in large goiters, but in small goiters often we do not need to cut the muscles.

Next the sterno-thyroid muscles with the gland capsule attached are divided and both lobes of the thyroid gland proper exposed. At this stage we introduce a needle into the upper and posterior aspect of the lobes and by retracting the gland inward and the muscles outward inject the sympathetic nerves as they enter the gland.

After waiting a few minutes to allow proper anesthesia, we can elevate the entire lobe with little or no discomfort to the patient. At this stage, most operators fail and are forced to resort to a general anesthetic for the patient cannot stand the choking sensation produced unless the anesthesia is proper. Care should be used not to inject below the posterior capsule, as temporary paralysis of the phrenic nerves may occur, as I have had on one side on more than one occasion, but with little or no serious consequences.

After the lobe has been properly dislocated and elevated the superior thyroid arteries are double clamped and divided, allowing the gland to then be rotated to the mid-line and bringing into better view the inferior thyroid arteries which should only be clamped very high on the lobe, so as

to avoid cutting off the blood supply to the parathyroids. These are supplied by the upper and lower branches of the inferior artery and the main vessel should never be ligated, if we wish to do a bilateral resection of the lobes, for tetany will invariably follow such a procedure. If there are any vessels crossing the isthmus from the other side these, if possible, should be clamped before we proceed further. Also the thyroidea ima artery and any veins at the lower pole of the lobe should be clamped and divided to allow the operator to properly elevate the gland.

At this stage the gland is grasped between the thumb and finger and with a sharp knife a wedge-shaped section is removed. Avoid as far as possible using clamps and scissors as these mash the gland and good healing does not occur. If proper hemostasis has been secured before we use the knife, we seldom encounter hemorrhage. Proper closure, sewing the raw surfaces together, leaving a portion of the posterior part of the lobe about the size of your little finger, finishes the procedure on that side of the neck.

The most important thing is to leave the isthmus if possible, covering the anterior aspect of the trachea.

The same procedure is applied to the opposite lobe.

This double lobectomy as described above applies with some modifications to the most common types of goiters operated upon and is generally accepted by operators today.

Of course, sub-sternal and other types of goiter will require modification in technique which any operator can always vary if he is a man of surgical experience, and he can suit his method to the conditions encountered, but time limits my discussion of this subject.

The divided ribbon muscles are now sutured, skin closed with Mitchlin clips and drainage established.

#### DISCUSSION

**J. Rowan Morrison:** I have enjoyed the symposium very much. It is one of the most interesting evenings I have spent at the society for a long time. The subject has been so thoroughly covered that not much can be added. When we consider what the essayists have presented here tonight, we begin to think we know more about goiter than formerly, but in the final analysis we will discover that we still have much to learn about it. When we come to consider whether toxic adenoma and Graves' disease are almost the same thing or not, we have something to think about.

The line of preparation as described by Dr. Smith I think is excellent. In many cases I believe the administration of digitalis is advisable, particularly where there is myocardial insufficiency.

I have found that luminal in fairly large

doses has a better effect in these cases than the bromides. So far as veronal is concerned, except during the time Dr. Wathen has mentioned, this drug keeps the patient asleep too long and we often wish we could arouse him earlier. The lighter hypnotics act very well.

Morphine has been a godsend in these cases. Years ago we feared to administer morphine under the impression that it was contraindicated and that more patients died who were given morphine than among those not receiving it. We now know that was a mistake, morphine is a godsend after the patient has been operated on.

In so far as the operation is concerned, I leave that to my surgical friends.

**Wm. Edgar Fallis:** I am rather reluctant to discuss a subject so broad as this one, especially in view of the fact that a number of the largest goiter specialists today hold different opinions about the treatment of these cases. However, there are a few points I wish to mention although the subject has been covered by the essayists.

From a practical standpoint, and for all practical purposes, I think toxic goiter, exophthalmic goiter, hyperthyroidism, toxic adenoma and all the numerous toxic symptoms, should be considered as one subject. So far as treatment is concerned, that would greatly simplify matters.

The thyroid alone is not responsible for the symptoms. Crile has demonstrated that removal of the suprarenal gland will produce the same improvement in toxic symptoms as the removal of one lobe of the thyroid. This is to say the least suggestive. There are, probably other toxic conditions which will produce similar symptoms. But behind all this there is an unstable condition of the individual designated as Graves' constitution. We do not know what that peculiar condition is. Crile has proven that a number of other things will precipitate the so-called crisis noted in toxic goiter: fear, shock, anxiety, the administration of suprarenal substance, asphyxia, general anesthesia. All of these things have been known to precipitate crisis in toxic goiter.

Another reason for believing that all the lesions mentioned should be considered as one disease, with different manifestations based on variation of the pathological condition present, is the fact that the administration of iodine produces practically the same result in every case. Improvement occurs until a certain stage is reached, after that iodine produces changes in the thyroid gland that are not beneficial to the patient. It has been said by some foreign and American observers that prolonged iodine administration has a tendency to precipitate carcinomatous implantations. Whether that is true I do not know, but it is mentioned in literature.

One thing in the preparation of these pa-

tients has not been mentioned: In all cases of hyperthyroidism and toxic goiter, before any operative procedure is undertaken I think it is well to have a careful laryngeoscopic examination made, to determine whether there is any destruction of nerve tissue, before removing the gland.

Another thing that is done, especially by Crile, is to use thyroid extract immediately preceding and immediately following the operation. His theory is that it stimulates the patient and prevents cardiac complications, and so far as my observation extends it would seem that his idea is correct. I have used it in some cases and can see no reason for not doing so. I shall continue to use it.

The question of anesthesia is very important: Personally I have used nitrous oxide oxygen with novocaine block. I think this is better than local anesthesia alone. Goiter and other patients with local anesthesia alone will often have psychic shock and fear that we are going to hurt them, and this oftentimes produces as much damage to the patient as pain. In my goiter and abdominal work I use a combination anesthesia, nitrous oxide to produce anesthesia or to depress the psychic centers, and locally novocaine in  $\frac{1}{2}$  of one per cent solution without adrenalin to prevent the patient having pain. I have had very satisfactory results with this method and like it better than anything else I have tried, and unless something better can be found I shall continue to use it. One of the most important things to decide in our operative procedure is just how much of the gland to remove and how much to leave. We always try to leave at least a portion of the posterior lobe, but it is known that unless we remove a sufficient amount of the thyroid recurrence is likely with hyperthyroidism. Young men are inclined to complete the operation as quickly as possible and sometimes do not remove a sufficient amount of the thyroid. On several occasions I have failed to remove a sufficient amount.

In my opinion the metabolic rate in toxic goiter is no criterion or guide to any operative procedure that may be performed or the results that may be expected from a certain type of operation. I believe the metabolic rate is of assistance in the differential diagnosis, it helps establish the fact that the symptoms are toxic in origin with more accuracy than it will tell us how much the individual can withstand. Consequently I would issue a word of caution about being afraid to do a certain amount of work on a patient with a high rate, or attempting too much in a patient who has a lower rate.

**W. O. Johnson:** This symposium has so thoroughly covered the subject that one can only emphasize a few important points.

Toxic adenoma and exophthalmic goitre are not the same disease. There are primary organic changes in the gland of toxic adenoma long before the effect of the toxins appear in middle



life, while exophthalmic goitre arises as a syndrome, having a primary neurogenic background. Yet the treatment of these two diseases is quite similar. The proper care of the damaged heart is the most important point in the preparation of the toxic adenomata cases. In true toxic adenoma the toxicity, as manifest by elevation of basal metabolic rate, is secondary in importance in comparison to the strength of the myocardium to withstand the shock of operation. In these cases the toxicity can be easily and quickly reduced, but the heart damage does not respond so readily to treatment. Digitalis therapy is indicated in this group of cases.

The goitre patient is sick because of his heart and dies because of his heart. This is most true of toxic adenomatous cases.

There are other diseases which produce symptoms simulating hyperthyroidism, and these must be carefully excluded before diagnosis of hyperthyroidism is made, and not all cases of hyperthyroidism call for operative intervention.

In the pre-operative care the outline given by Doctor Smith is an excellent one. Careful attention must be given to maintaining a high water and glucose balance, and ample sedatives to reduce excessive activity. Postoperatively the ample administration of morphine to insure relaxation is most important.

Only by co-operation on the part of the medical man and the surgeon can these patients be properly prepared for operation.

In the bad risk cases and especially those with damaged myocardium, these patients should be operated on in room in bed under gas analgesia and principally local novocaine anesthesia. In this way more operative work can be done, which will insure quicker and better results.

A cure of the goitre patient is not the operation alone, but it necessitates careful follow-up at intervals of three months for from one to one and one-half years until the individual has been stabilized.

This symposium has been very profitable and enjoyable, and I wish to thank each essayist for his particular part which has been so well presented.

**W. B. Troutman:** I would like to say a few words about the heart in cases of toxic goiter. There are probably three causes for the heart complications which we see in goiter. First, the deleterious effect of the thyroid secretion on the heart; second, malnutrition of the heart which goes hand-in-hand with the general malnutrition of the body; third, the wear and tear on the heart from changes in the circulation due to tachycardia, etc. There are three conditions that may result in damage to the heart in the following order of frequency: (1) during the first one or two years there will be noted a slight enlargement of the heart, (2) later on fibrillation may occur, (3) there may be an acute myocarditis in some cases, which is almost

invariably followed very promptly by death.

As to positive findings in the heart: we sometimes hear a to-and-fro friction-rub in the pulmonary area, very similar to that heard in pericarditis, but at the post-mortem table nothing has been found to explain this friction-rub. The electrocardiographic findings are few, sometimes there is an elevation above normal of the "T" wave; about 25% of cases will show left ventricular preponderance in the tracing. There is usually a high systolic and low diastolic blood pressure, or in other words, a high pulse pressure.

As to the use of heart remedies in goiter cases, we consider them of practically no value. With fibrillation, there is only one remedy, i. e., removal of the gland; if normal rhythm does not then return rather promptly, quinidine should be used, in the majority of cases normal rhythm is restored without its use.

I consider the x-ray to be useful and valuable in certain cases of toxic goiter.

**Frank P. Strickler:** I would like to emphasize the use of the barbituric acid group with local anesthesia in goiter surgery. The advent of the barbiturates with local anesthesia has rendered the so-called "stealing" of goiters, as practiced by Dr. Crile, obsolete.

I have used luminal, amytal, nembutal and other preparations, but in my opinion, veronal is the best drug of all. I have given as much as 40 grains of it in divided doses prior to operation, either by mouth or by rectum. When veronal is used in connection with local anesthesia, the patient comes to the operating room half asleep, he is not frightened nor worried and has a sense of well-being, and, in many instances, does not realize that he is going to be operated on and does not recognize that he has been operated on for a number of hours after the operation has been done.

In my opinion, a local anesthesia combined with veronal is to be preferred over all other types of anesthesia in goiter surgery. Local anesthesia has the following advantages: There is no engorgement of the large veins of the neck, which we always get under gas anesthesia. Consequently, there is very little hemorrhage when engorgement of the large veins of the neck is avoided, and we do not have a sloppy operative field. Under veronal and local anesthesia, there is no possibility of injury to the recurrent laryngeal nerve, for we can arouse the patient and talk to him any time we see fit. I always keep my patients talking when I am operating in the region of the recurrent laryngeal nerves.

Veronal and local anesthesia is to be preferred in those cases of toxic adenomas and hyperthyroidism where we have auricular fibrillation and any damage of the heart muscles. There is no question in my mind but that a number of fatalities have occurred in this type of case when a general anesthetic has been given.

Post-operatively, under veronal and local anesthesia, we do not have vomiting and straining. If we avoid vomiting and the above mentioned engorgement of the large veins of the neck, we also avoid post-operative hemorrhage. And, we are well aware of the fact that post-operative hemorrhage has occurred in the hands of the best operators.

There is no question in my mind that a number of fatalities following goiter operations can be directly traced to the administration of a general anesthetic, and I believe that many of these patients might have been saved by the use of veronal and local anesthesia.

**J. Garland Sherrill:** For years I have contended that polar ligation in the treatment of goiter was useless, and am glad to hear Dr. Smith say the same thing. The chief items in preoperative preparation in these cases are: rest in bed. An ice bag over the goiter and over the heart is of value. Sedatives may be administered as required.

There is no situation in which surgical judgment is more to be observed than in the treatment of goiter. We operate on those patients who really need surgery and let the others alone. There are cases in which operation is contraindicated. If operation is decided upon, medical treatment should not be continued to the point where the heart has undergone extensive degenerative change.

In toxic goiter I would recommend that operation be considered early, that the patient select a surgeon and internist who will work in harmony and institute the necessary treatment prior to operation. The patient should be placed at rest in bed, the necessary drugs should be administered and the heart carefully conserved. Iodine is of value and there is a definite indication for its use, particularly just before operation.

**A. M. McKeithen,** (in closing): I thank the gentlemen for their discussion. There is and probably will be for some time a difference of opinion as to the etiology of toxic goiter. I shall not enter into this discussion. About all we can say at present is that, due to some cause or stimulus unknown, certain characteristic changes occur in the thyroid gland; and associated with a hyper-secretion of thyroxin, which in the case of exophthalmic goiter is probably abnormal in quality as well as in quantity.

I believe in the dualistic nature of hyperthyroidism. There is a clinical and pathological difference between exophthalmic goiter and toxic adenoma, yet both give the picture of hyperthyroidism. The symptoms which I have enumerated as characteristic of pure hyperthyroidism or toxic adenoma are also present in exophthalmic goiter with the addition of exophthalmus, stare, the peculiar nervous phenomena, and frequently gastro-intestinal disturbances. The adenomatous gland is usually asymmetrical and nodular; the exophthalmic gland is

usually symmetrical and smooth. The exophthalmic gland shows diffuse hypertrophy and hyperplasia; the adenomatous gland shows areas of hypertrophy and hyperplasia usually, as well as the other changes mentioned. Adenomas may be present in a diffusely hyperplastic gland.

Plummer reports that at the Mayo Clinic their clinical diagnosis of exophthalmic goiter corresponded to the pathological diagnosis in 98 per cent of cases. In the adenomatous type of goiter the clinical diagnosis corresponded to the pathological diagnosis in 90 per cent of cases; but in these cases they could not positively differentiate between those which were hyper-functioning and those that were not.

There is a very definite difference in the response to iodine. In cases of adenomatous goiter there is the same response from rest in bed whether iodine is administered or not. The post-operative crises commonly seen in exophthalmic goiter are absent in the adenomatous type regardless of the administration of iodine.

Of course a thyroidectomy should not be done just because an increase in basal metabolism is found. Other conditions such as fever, severe anemia, leukemia, diabetes, asthma, and pituitary disorders may cause an increased basal metabolic rate.

In every case the vocal cords should be carefully examined both before and after operation. One per cent of normal individuals will show a paralysis of one vocal cord. If there is a paralysis of one vocal cord we should be doubly careful to avoid injury to the recurrent laryngeal nerve on the opposite side. So-called "collapse of the trachea" with respiratory obstruction is almost without exception due to vocal cord paralysis. In order to avoid nerve injury, the gland should be elevated and the resection done from the trachea outward and above the level of the trachea, leaving the postero-medial portion of gland on each side which will protect the nerve. The anesthetic should be local or local plus either gas or some of the barbitol derivatives. Suit the anesthetic to the patient rather than the patient to the anesthetic. After resection of the first side, the patient should be made to talk and cough as a test of vocal cord function, hence profound anesthesia is contra-indicated. If one nerve has been paralyzed be very careful to avoid injury to the other one. Paralysis of one cord is unfortunate but of both it is tragic.

As to the administration of digitalis: The best argument that can be advanced against digitalis is that made by Plummer; after he discontinued its use, without any other change in treatment or operative technique, there was a reduction the following year of approximately 2 per cent in the operative mortality of toxic adenoma. I think that justifies the conclusion that digitalis should not be used except in the rare cases of decompensation that will not respond to rest.



**Uly H. Smith**, (in closing): In regard to polar ligation: In hyperplastic cases I think we formerly saw some definite improvement following ligation, but in toxic adenoma cases ligation did no good. Since the introduction of Lugol's solution it has not been necessary to do any polar ligations in these cases.

As to psychic influence in the production of goiter: We had two cases last year of hyperplastic toxic thyroid glands, both in females, and both caused by sudden deaths in the family. They did not recover from this shock and developed toxic thyroids.

Concerning the use of bromide: I have not very much defense for it. It is a good nerve sedative the same as the barbital salts. Much might be said about amytal. We must use the anesthetic most suitable for the individual patient.

As to preoperative treatment: I have seen extremely toxic patients placed at rest in bed and under the administration of Lugol's solution improvement was so marked that they refused operation.

We formerly digitalized our goiter patients before operation, but this was discontinued several years ago. Our mortality is less since we ceased using digitalis.

**Spontaneous Cure of Tuberculous Pulmonary Caverns.**—Wohlers points out that the possibility of spontaneous cure of tuberculous pulmonary caverns depends largely on the mechanical conditions governing their evolution. From this standpoint he differentiates the following three classes of caverns as a guide to prognosis and treatment: 1. Caverns of the first class with soft walls, of recent formation, localized in the middle portion of the lung and surrounded by a pulmonary parenchyma only slightly infiltrated, indicate an excellent prognosis and are usually cured spontaneously and quickly by a simple rest cure. A therapeutic pneumothorax is rarely justified in such cases. 2. Caverns of the second class, the walls of which offer little true resistance, of recent formation, localized at the apex or near the hilus, or surrounded by abundant infiltrations, present a less favorable prognosis. The author recommends that a rest cure be tried for at least two or three months. If spontaneous cure does not result, a pneumothorax may then be established. 3. Caverns of the third class with sclerosed walls formed of a semicartilaginous shell in extreme cases, or of an unfavorable localization at the base of the lung, or of unusual size, generally necessitate surgical intervention according to the exigencies of the particular conditions. The author cites twenty-nine of the many cases of pulmonary caverns on which his conclusions are based.

## SUPERFLUOUS HAIR AND THE X-RAY\*

WILLIAM J. YOUNG, M. D., F. A. C. P.

Louisville.

Since Biblical days, when Adam and Eve, through eating the fruit of knowledge, became self-conscious, superfluous hair has become more and more repugnant to the female of the species. As time passed, with the efforts of women to appear more pleasing and comely to the male sex, the point has been reached where the only hair sought for is that on the head. Today superfluous hair is looked upon as a stigma, and various means of elimination are used extensively by practically all females.

The cause of superfluous hair is unknown, but numerous reasons are given for any increase over the normal growth. During the past ten years, having no knowledge on this subject, physicians have advanced the theory that the internal glands are causative factors. Since we know so little about the internal glands, this seems a safe deduction for the time being, and we may reason with honor and dignity, as did former practitioners who associated various things with malaria.

In passing I may say that no one has ever been able to prove that the application of grease or greasy ointments will produce an increase in hair growth, nor do depilatories or shaving tend to make the hair coarser, although these ideas are accepted as true by the public.

The most effective method of treating a superfluous growth of hair is the galvanic current, inserting the needle of the negative pole to destroy the hair follicle, the positive pole being introduced into the follicle, a deposit of metal is tattooed into the skin at the site treated. If the galvanic current is used intelligently, the hair follicles are destroyed, and the regrowth of hair thus prevented. This procedure is very tedious and requires great patience on part of the operator as well as the patient.

To prevent scarring from this method of treatment, the dermatologist should use the minimum amount of current which will destroy the hair follicles, and not destroy follicles too close together at the same sitting. All this is learned by experience and practice.

Since the appearance of superfluous hair is considered such a stigma to the female, various methods of removal have been evolved. The x-ray, having a destructive action on the hair follicles, has been and is being used at present by the ignorant and unscrupulous, as a safe method of permanent epilation of superfluous hair. It is a well known fact that irradiation by the x-ray, which we know

\*Read before the Jefferson County Medical Society. 7



Fig. 1

will cause permanent epilation, is both unsafe and unwise, the reason being that to permanently destroy the hair follicle by use of the x-ray, we are apt to produce change of varying degrees in the structures of the skin. The "tricky" part of this change is that it may come one, two, three or even four years later, manifesting itself first by dryness of the skin, then telangiectasia in the tissues subjected to x-ray exposure, and later the skin may ulcerate and cancer develop.

There have been numerous cases reported of bad results following the application of x-ray for the permanent removal of hair. The patient who has become conscious and sensitive regarding superfluous hair is absolutely at the mercy of anyone who thinks he or she can permanently remove the hair by x-ray, and especially unscrupulous concerns who advertise this method. In most of the cases reported in literature where bad results have been noted, the patients had received treatment from the "Tricho System." Inasmuch as removal of superfluous hair belongs within the domain of the dermatologist, I investigated the "Tricho System."

A young patient of mine was very anxious to have some superfluous hair removed for cosmetic reasons, so I asked her to consult the "Tricho" people and report after her visit. This system guaranteed to permanently remove the superfluous hair without any danger or damage to the skin. The technique

consisted of treatments every two weeks until the hair disappeared.

Just why this "system" is permitted to operate, and what protection is granted the concern is not known; but the method of treatment is pernicious as shown by subsequent clinical results. And, as a reminder to the medical profession, I am submitting two case reports to call attention to this method, the unsafe and often harmful use of x-ray irradiation for permanent removal of hair.

The first patient (Fig. 1, 2 and 3) was seen at the office. The second patient was seen a short time ago with Dr. Herman Goodman in his clinic at New York Skin and Cancer Hospital; and Dr. Goodman was kind enough to allow me to report the case and furnished some photographs taken by him at the time. (Figs. 4, 5 and 6). The history in both cases is very similar.

Case I. The patient was treated during March, 1926, in Chicago, Illinois, for removal of some "down" from the face, with partial success. Fifteen treatments were given at two weeks intervals. Two years later the patient noticed dryness of the skin over the treated area, and shortly afterward tiny blood vessels made their appearance and became permanently visible to the eye. Since then the condition has gradually become more noticeable and, of course, a greater an-



Fig. 2





Fig. 3

noyance to the patient. At present the skin about the chin and along the angle of both jaws has a "thinned-out" blotchy appearance; the less affected skin is interspaced by tiny blood vessels. This atrophy of the skin and telangiectasia are, of course, permanent. Nothing has yet been devised that will benefit the damaged skin. The usual history is that the condition becomes gradually worse, and the skin may ulcerate anywhere within the debilitated area. (See illustrations 1, 2 and 3.)

Case II. The next three photographs shown were taken by Dr. Goodman. (See illustrations 4, 5 and 6). The patient had



Fig. 4

received treatment in New York City, and the skin changes began two years after the last treatment. As may be noted by the pictures, the patient presents the same type of mottled skin in locations similar to Case 1, and as the history of her treatment is practically identical, I will not burden you by repetition.

Case I had an erythema and some burning



Fig. 5

following the first treatment, and this occurred after each treatment.

The second patient was at no time conscious of any symptoms following treatment, which would indicate to my mind that the technique was not even standardized, both patients being brunettes.

The main point I have sought to emphasize by these reports and pictures, is the fact that x-ray is a dangerous agent with which to



Fig. 6

attempt permanent destruction of hair follicles without producing changes in structure and texture of the skin treated. These changes are progressive, usually becoming relatively worse in the ensuing years, and any reparative or even palliative treatment is questionable as to ultimate results.



By accepting these facts, we are at least able to advise people who contemplate having x-ray used to remove superfluous hair, of the underlying dangers.

### DISCUSSION

**C. Brooks Willmott:** I have had no experience in the removal of superfluous hair with x-ray. I have always understood that it was a dangerous procedure. I do not believe any competent dermatologist would undertake to remove superfluous hair from any part of the body with x-ray because of the unfavorable after effects.

**William J. Young, (in closing):** One of the most interesting things about epilation with x-ray is the fact that the bad results do not manifest themselves soon after treatment. It is a year or longer before the unfavorable effects are noted. As a matter of fact, we formerly believed that evidence of an x-ray burn developed within about ten days, when intensive dose is given. We now know that when x-ray is given in small doses evidence of burning may appear as late as two or even three years. There is also danger of malignancy from use of x-ray in such cases.

The concern mentioned in my report guaranteed to remove superfluous hair without danger of damage to the skin. I know nothing about the legal aspects, but evidently there must be some loophole by which the law is evaded.

**Experimental Lesions of Brain from Carbon Monoxide.**—Experiments made by Semerak and Bacon demonstrate that the effect of carbon monoxide varies in different animals; that it is rapidly eliminated by rabbits and guinea-pigs; that rabbits are especially resistant to the gas, that weight of the animals the amount of gas and the manner of administration modify its action. Symmetrical lesions in the brains of the dogs and more rarely in those of guinea-pigs and rabbits, lesions resembling those occasionally found in human brains, may be produced experimentally by injecting the gas into the arterial blood stream or by having the animals inhale pure carbon monoxide or illuminating gas. When pure carbon monoxide is injected into the blood stream, it combines so rapidly with the hemoglobin that gas embolism does not occur, or at least not with doses such as were injected in these experiments. Ten cubic centimeters of air alone injected into the carotid arteries of dogs causes severe convulsions, is more frequently and speedily fatal than a similar amount of carbon monoxide, and results in fewer gross changes, these being rarely in the basal ganglion.

### LUNG ABSCESS\*

L. WALLACE FRANK, A. B., M. D., F. A. C. S.

Louisville.

The causes of pulmonary abscesses, excluding aspiration of foreign bodies and those abscesses seen in connection with new growths of the bronchi, may be listed under three headings. There are those following surgical operations, those following acute infection of the respiratory tract, and those due to trauma. In a series of 172 cases reported by Flick, Clerf, et al (*Archives of Surgery*, Dec. 1929, page 1292), 70 per cent followed surgical operations, and of these 56 per cent followed tonsillectomy and 62 per cent followed all types of oral operations. Approximately 25 per cent were seen following acute infection of the respiratory tract.

Lung abscesses may occur as single or multiple, as large or as diffuse small collections of pus. As to the location of the abscesses, the usual expressed view is that these occur most frequently in the lower lobe of the right lung although the figures of Flick, et al do not substantiate this.

The symptoms are well illustrated in the following case, and in those abscesses developing after surgical procedures about the mouth make their appearance as a rule 7 to 10 days after operation. The patient complains of pain in the chest, cough, fever, with or without chills and the expectoration of fetid pus. Hemoptysis rarely occurs as the first symptom but is frequently noted some time during the course of the disease.

The diagnosis of pulmonary abscess is not difficult to make when one studies the onset and progress of the symptoms, the character of the sputum, the result of bronchoscopic examination and above all the x-ray films. Pulmonary abscess must be differentiated from tuberculosis, bronchiectasis, interlobar empyema, neoplasm and some of the rare types of lung infection.

This condition of lung abscess is a serious one and Lord concluded, after a study of a large group of cases, that the mortality in un-operated lung abscess was about 74 per cent. Lilienthal states that many people with abscesses of the lung who leave the hospital after recovery from operation may die of hemorrhage, recurrence of abscess or gangrene, or other septic processes which develop afterward. Muller in a study of 35 patients had 10 or 28.6 per cent of deaths and he noted that the mortality of operation in those over 36 years of age was approximately 44 per cent. In a group of 25 of these patients which was followed for at least one year the

\*Read before the Jefferson County Medical Society, February 2, 1931.



final mortality was 40 per cent.

Case Report: R. D., white school boy, 11 years old, was referred to us on February 4, 1930, by Dr. Gaylord Hall.

His family history was negative except for the fact that two brothers had tuberculosis.

History of the present illness dates back about a year and a half at which time his tonsils were removed under a general anesthetic. Ten days after this operation he developed pain in the right chest, cough and fever. The fever continued and later he developed fetid expectoration, clubbing of the fingers and progressive loss of weight.

He was admitted to Waverly Hills Sanatorium with the presumptive diagnosis of tuberculosis and later diagnosed as lung abscess. He remained at Waverly Hills for nine months receiving there the usual sanatorium care and in addition postural drainage. Up on his discharge from Waverly Hills he returned home and on October 18, 1929, was referred to St. Anthony's hospital. Here postural drainage was continued and in addition bronchoscopy and aspiration were employed. On October 29 the patient had a slight hemorrhage. Examination of the pus removed by aspiration showed fusiform bacilli and some spirilla. Consequently he was given arsphenamine intramuscularly and also neosalvarsan intravenously. The boy continued to have aseptie type of temperature and to expectorate large quantities of very foul-smelling pus after a paroxysm of coughing. We were called to see him February 4th at which time his temperature was ranging from 99° to 103° F., and pulse rate from 120 to 136.

Examination revealed a pale looking boy who is coughing and expelling large quantities of very fetid pus. His eyes are negative except for marked pallor of the mucous membrane. Tonsils absent.

Thyroid is not enlarged and there is no enlargement of the cervical lymph nodes.

Heart is rapid, 130 per minute of fair tone and there is a systolic murmur at the base. The left border is outside the left nipple line.

Lungs, the left lung is apparently clear, hyper-resonant and there are no rales. On the right side there is dullness to flatness beginning at about the 4th dorsal spine and extending downward. Over this area the breath sounds are absent and the fremitus increased. At the apex there is normal resonance and no rales.

The abdomen is distended, the liver extends a little below the costal margin, the spleen is not palpable.

There is marked clubbing of the fingers and slight cyanosis.

## BLOOD COUNT

Hemoglobin	....56%
Erythrocytes	...2,620,000
Leukocytes.	...21,000
Polymorphonuclears	.....87

## URINALYSIS

Color	.....	Yellow
Reaction	.....	Alk.
Sp. Gr.	.....	1.004
Alb.	.....	0
Sugar	.....	0
Acetone	.....	0
Diacetic Acid	.....	0

Microscopic Pus	Neg.
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The patient was x-rayed October 25th for evidence of sinus disease and Dr. Enfield reports the frontals are small and clear.

The ethmoids and sphenoid and right antrum are clear. The left antrum shows some x-ray evidence of disease.

A study of the plates taken at Waverly Hills revealed an abscess of the right lung at the level of the 8th rib and diffuse infiltration of the entire right lower lobe.

A diagnosis of pulmonary abscess and pneumonitis was made and on February 5th, 1930, the first stage of the drainage of this abscess was done. The operation was performed under gas oxygen anesthesia and consisted in the subperiosteal of approximately 5 inches of the 7th and 8th ribs. The wound was packed with gauze and no attempt made to close it.

February 11th x-ray examination of the chest was made by Dr. Enfield who reports no aeration of the right lung except at the apex. The heart is displaced to the left and there is probably a large amount of fluid in the right chest.

February 15th the packing was removed and with the electric cautery an opening three inches long was made through the pleura and adherent lung into a large abscess cavity. Following a spasm of coughing the boy immediately evacuated a large amount of pus and gangrenous looking tissue. A rubber tube was placed in the abscess cavity and held in position by one silk worm gut suture and the cavity then loosely packed with sterile gauze and no attempt made to close the skin.

The patient immediately began to improve, the coughing diminished and expectoration practically ceased. The wound was dressed at intervals, the gauze being removed and the wound repacked.

March 8th, the gauze packing was removed entirely and the patient was dismissed from the hospital on March 16th. He had gained in weight and strength, had very little cough and the rubber tube was still in position.

April 4th he came to the office for dressing and it was noted that he had continued to gain in weight and strength, his color was good and there was a slight dry cough. X-ray

examination showed drainage tube in the lower part of the right chest just above the diaphragm. There is some thickening and increased density in the lower part of this side. The 7th and 8th ribs have been resected and the lung above the 7th rib appears clear except for slight infiltration about the hilum.

May 9th fluoroscopic examination showed the lung field practically clear downward to the 9th rib.

May 22nd the tube was removed and he came to the office at intervals for dressing. He continued to gain in weight and the wound finally healed and the cough entirely ceased.

January 21st, 1931, he returned to the office with a small broncho-cutaneous fistula. X-ray examination on that date revealed an almost normal lung field and good diaphragmatic movement on the right side.

It may be necessary to close this broncho-cutaneous fistula if under treatment it does not close spontaneously.

#### COMMENT

We purposely have mentioned nothing as to the treatment of pulmonary abscesses. This patient received in their proper order all the methods that we command, namely, in the early stages he was treated conservatively by rest, sunlight, proper food and postural drainage. These methods alone will cure a certain percentage of cases. In those cases where spirilla are found the arsphenamines are indicated. When these fail bronchoscopic aspiration of the abscess should be attempted. In those abscesses situated deep in the lung and opening into the larger bronchi this method may prove very successful. In those abscesses situated in the periphery of the lung external drainage will have to be employed in a large percentage of cases.

#### DISCUSSION

**Gaylord C. Hall:** I did not perform tonsillectomy on the patient exhibited by Dr. Frank, that had been done before I began treating him. The history given me when I first saw this boy, sixteen months after suppuration of the lung began, was that he had been at Waverly Hills Sanatorium for some time. On admission to that institution he had given no history of tonsillectomy previous to lung suppuration; this history developed later.

Spirochetes and fusiform bacilli were present in the boy's sputum, and we gave him several intravenous injections of arsphenamine. Severe depression followed each injection, and there was no improvement in his condition. He was then admitted to St. Anthony's Hospital and we started bronchoscopic treatment. For a while he improved, but after a few months improvement ceased. At that time I asked Dr. Frank to see him, and I think he is to be congratulated on the outcome. Those of you seeing this boy now cannot imagine how badly he

looked at the time he was having active suppuration of the lung and high fever. Bronchoscopic treatment reduced the fever for a time and for a few weeks he was more comfortable.

All the lung abscesses I have seen have been in the later stages. This is the first case I have ever seen in a patient as young as eleven years. Dr. Frank has shown us that the proper solution in some of these cases is the application of surgery. Of course in the beginning we employ the simpler measures, sunlight, fresh air, forced feeding, postural drainage, etc. There is no contraindication to the employment of bronchoscopic treatment, in fact it may be distinctly indicated when granulations are present. Dilatation of the bronchi with removal of the granulations may result in release of the pent up pus. The earlier the patient is seen the better chance we have for cure by medical treatment including drainage and bronchoscopy. On the other hand, as Dr. Frank has said, if the abscess is in the periphery of the lung little can be accomplished by these measures. When the abscess is deeper in the lung near the hilum, I think both bronchoscopy and drainage should be employed. These cases require the attention of the internist, the bronchoscopist, the roentgenologist and the surgeon all working together.

**Paul A. Turner:** The case Dr. Frank has presented seemed to be one very suitable for surgical treatment with the probability of obtaining a good result. If a lung abscess is peripheral there is no great amount of lung tissue to be cauterized to reach the abscess. However if it is deeper in the lung, the procedure is not so simple. In my experience lung abscess has been confined to adults, as we do not admit children to Hazelwood Sanatorium.

One observation I would like to make that has not been discussed, i. e., in the literature you will find the claim that a certain number of cases of lung abscess, especially when located at the hilum, have been cured by phrenic exeresis. The literature also shows that aside from curing some patients it will improve others, and the claim is made that it never can do any harm. I would like to ask Dr. Frank whether he has had any experience with phrenic exeresis in these cases. I have tried this method in adults and some of them have responded beautifully, being able to return to their work. It is too early to say whether they will make a complete recovery or not.

In cases where the abscess is fairly low near the hilum, there is some danger in doing phrenic exeresis. The rising diaphragm may exert pressure on the abscess, block drainage and the patient is made very much worse.

**Joseph M. Frehling:** Dr. Frank mentioned the more common causes of lung abscess. Among the more uncommon causes are tuberculosis and actinomycosis. Abscess may be due



to infected pulmonary emboli, infected exudate of pneumonia, particularly the bronchopneumonic type, infection following neoplasm, and also infection involving the diaphragm.

One factor that has not been mentioned as a possible cause of lung abscess in non-penetrating trauma. For example, cases have been reported of fractured ribs from external trauma without penetration of the pleural cavity, yet the trauma was severe enough to produce hematoma which later became infected and lung abscess developed. Trauma should always be considered as a possible cause.

Dr. Hall mentioned the fact that cases of lung abscess do not come to our attention until late in their development. I think the same thing applies here as would apply to the question regarding phrenicectomy in the treatment of lung abscess, the theory and purpose of which is to produce raising of the diaphragm to obliterate the cavity. The earlier treatment is instituted, whether it be phrenicectomy or bronchoscopy, the better the result is likely to be. If the abscess has existed for a long time, if the walls have become thickened, rigid and non-collapsible, these cases will not show the improvement from bronchoscopy or phrenicectomy that they will show earlier in the disease. That is one of the reasons why these cases should be diagnosed early and the patients referred to the laryngologist for bronchoscopy or to the surgeon for operative intervention.

The cases in which there is cough with fetid sputum are easy enough to diagnose, but not all patients with lung abscess have fetid sputum. It depends on the character of the causative factor of the abscess, and in some cases the characteristic odor is absent. Unless due to some putrescent form of infection the fetid odor so commonly referred to will be absent. There may be constant pain without cough; in fact, cough may be absent, therefore should not be considered an essential diagnostic point in lung abscess. Cyanosis is always present. An important factor in these cases is to obtain a careful history for at least three months prior to the onset of symptoms. Operations, infected teeth, diseased tonsils, furunculosis, chronic otitis media, etc., are the more common causes of lung abscess.

The complications of lung abscess have not been mentioned particularly. Perhaps the most common and at the same time the most grave complication is brain abscess. There may occur gangrene of the lung, extension of the process into the other lung, extension into the pleural cavity, amyloid degeneration and other changes usually noted in chronic suppurative processes.

**L. Wallace Frank**, (in closing): I thank the gentlemen for their liberal discussion. Someone spoke of lung abscess following pneumonia. We had one such case several years ago in a patient referred to us by Drs. Van Zandt and

Bruce. It was thought the boy had an associated empyema. We aspirated and withdrew about 10 c. c. of offensive pus. We opened the chest at the site of aspiration and entered an absolutely clean pleural cavity. We had aspirated a small abscess in the costo-phrenic angle. The pleura was closed and the abscess drained. Later roentgen-ray examination showed the abscess cavity closed, and the patient made a satisfactory recovery. This was before someone in Washington advocated pneumothorax in the treatment of lung abscess.

Pneumothorax has a place in the treatment of this disease, and is best adapted to abscesses in the upper part of the lung where adhesions form late and collapse is much better. An objection to the procedure is that its performance in the presence of adhesions might cause rupture of an abscess near the periphery of the lung with secondary pyopneumothorax which in many cases causes death. Another objection is that it makes the operation of draining these abscesses through the chest wall a dangerous procedure in that we must necessarily have adhesions between the parietal and visceral pleura previous to such drainage.

Regarding the treatment of lung abscess by phrenicectomy or crushing of the phrenic nerve: Alexander claims to have secured good results following the rise of the diaphragm incident to the operation. The acute pathological process in lung abscess is usually over in four to six months, and paralysis of the diaphragm due to the crushing of the nerve lasts only about that long. Personally we have had no experience with it.

Regarding the point mentioned by Dr. Frehling in speaking of the more uncommon causes of lung abscess: We did not consider these because of the time limit. Lung abscess may be due to tuberculosis and mycoses.

As to cough not being a prominent symptom: In the series of 172 cases reported from the Jackson clinic, cough was present in more than 88 per cent.

I am glad Dr. Frehling mentioned the complications of lung abscess: We presented a case report not an essay and had to omit even the complications which occur rather commonly. One complication which Dr. Frehling failed to mention is empyema resulting from rupture of an abscess into the free pleural cavity.

**Corpus Luteum of Pregnancy.**—The evidence offered by a case cited by Douglass allows him to state with some assurance that, in the human being, pregnancy is independent of the hormone supplied by the corpus luteum of pregnancy once its duration exceeds approximately four to six weeks.

COLLEGE OF PHYSICIANS AND SUR-  
GEONS, LOUISVILLE, 1880, THEN  
AND NOW\*

WILLIAM B. DOHERTY, M. D.

Louisville.

I had the honor of being the last secretary of the College of Physicians and Surgeons of Louisville, a Medical Society which ceased to exist in 1880. It was chartered by the State of Kentucky in 1836 and among its incorporators were Dr. Samuel D. Gross, the Nestor of Surgery in the United States, whose system of Surgery was in the hands of well nigh every practitioner throughout the civilized world; Dr. Austin Flint, author of the best work on the Practice of Medicine that then appeared in any language; Dr. Henry Miller, the writer of a System of Obstetrics that was never equalled by any native publication; Dr. Lunsford P. Yandell, Sr., Professor of Chemistry, Transylvania University; Dr. Theodore S. Bell, dubbed the "Encyclopedia of Medicine," and Professor of Principles and Practice of Medicine, University of Louisville; and others less conspicuous as authors and teachers. Dr. Gross in the early 60's removed to Philadelphia and Dr. Flint to New York.

The College of Physicians and Surgeons demanded strict ethics from its members, had a Board of Censors, and a printed scale of fees commensurate with the character of the services rendered and the circumstances of the patient. The membership consisted almost entirely of general practitioners, only four specialties (Eye, Ear, Nose and Throat) recognized, and a few did all the major consulting surgery which was combined with their general practice. One member, Professor of Surgery in one of the medical schools (there were five then in Louisville), was expelled from the College for examining for an Insurance Company for Three Dollars instead of Five. An oculist was severely reprimanded by the Board of Censors for criticizing publicly unfavorably the treatment of a patient by another member and threatened with expulsion in case of further unethical conduct. The art of diplomacy was not so sublimated as at present, and in view of the fact that the College had many members who were teachers in the five medical schools in Louisville, heated discussions and personal animosities were sometimes indulged in.

The loss of a "stiff" from a vat in the cellar of the University of Louisville was the cause of preparation for a duel between two demonstrators of anatomy, who with their seconds and some friends repaired to the

border of Tennessee to vindicate their honor by the code duello. Fortunately, the sheriff coming over the hill appeared in the nick of time, for distances were measured and pistols loaded; and the affair was amicably settled.

Notwithstanding these little discrepancies, no kinder, nobler or more hospitable type of chivalrous gentlemen could be found anywhere than among the members of this Medical Society of Louisville. Some who were teachers in medical schools invited the students to delightful entertainments and charming social gatherings at their homes. Several of the members had been surgeons in the Civil War. Many students from the South wore shawls instead of overcoats. One of these, probably forty years of age, came up for examination: "Pull up your chair," said the examiner, "I want every shot to count." "Fire away, Professor, I was in worse quarters than this." "What do you mean?" asked the Professor. "I wish to tell you I was at the battle of Shiloh and saw you on the battlefield; you were on General Johnston's staff and looked well on horseback." "You, at the battle of Shiloh! Come around to my house next Saturday night and we shall have a lively chat over the battle."

Transylvania University, Lexington, Kentucky, known as the "Athens of the West," then the most prominent school west of the Alleghenies, had a galaxy of remarkable scholars and teachers, some of whom afterwards became connected with the University of Louisville.

In 1879 the American Medical Association met in Louisville and its president, Dr. Samuel D. Gross, read an able paper on one of the lost arts, that of blood letting, and recommended its use in typical sthenic cases of pneumonia, and also delivered a beautiful oration on Dr. Ephraim McDowell, Founder of Ovariectomy. Dr. Gross and several members of the Association visited the former home of Dr. McDowell at Danville, and Dr. R. O. Cowling of the University of Louisville in an eloquent speech, presented Dr. Gross the door knocker of Dr. McDowell's home. In the address he spoke of the sweetest memories of our lives being woven about our domestic emblem, the hearthstone around which we have gathered, the chair on which our beloved ones have sat, the lute their hands have played, the cup their lips have kissed, what jewels can replace their value? Do you remember the enchantment that Douglas Jerrold wove about a hat peg? "I would that the magician's wand were granted me a while to weave a fitting legend around this door knocker; oftentimes has it aroused to action one whose deeds have filled the world with fame. It belongs by right to you, Dr. Gross. This household genius passes most fittingly from the dearest of Kentucky's dead

\*Read before the Jefferson County Medical Society, June 15, 1931.



surgeons to the most beloved of her living sons in medicine."

Dr. Cowling's address was a classic.

Among the list of eminent teachers who graced the chairs of the University of Louisville sixty years ago may be mentioned Theodore S. Bell, Professor of Practice of Medicine, whose lectures on malarial fever were masterly, evincing extraordinary powers of observation and gems of fore knowledge in the van of his generation without the clinical use of the microscope. He taught that vegetable decomposition in stagnant pools and swampy districts, and solar temperatures were productive of malarial fever. These conditions intensified by more marked vegetable decomposition and a mean solar temperature of 70 degrees for sixty days were necessary factors for the production of yellow fever, and that malarial nor yellow fever was not likely to occur should one sleep thirty feet above the ground and avoid sleeping or nodding at night on the ground floor. He was the first, perhaps, to teach that yellow fever was not contagious and might not originate north of the Ohio River, in view of the fact that the mean temperature of 70 degrees for sixty days did not occur there. He denounced shot gun quarantine which every outbreak of the disease brought into being. It must be remembered if Dr. Bell did not succeed in proving that the bites of the anopheles and the stegomyia fasciata, discovered later by Dr. Walter Reed and others as the cause of malarial and yellow fever, he very well and accurately described the factors in the habitat of mosquito life. His lectures illustrated the beauties of sound reasoning and the advantages of vigorous generalization from facts obtained by observation and experience. As we had, however, some cases of yellow fever on Bible alley and 10th and Broadway and no where else in Louisville, in September 1878, it was thought probable that the stegomyia fasciata, discovered afterwards as the cause of yellow fever, was conveyed in railway baggage from Memphis where the disease was then epidemic, to the neighborhood of the Louisville & Nashville depot at Tenth and Broadway. Wonderful Dr. Theodore S. Bell! He wore the white flower of a blameless life. He lived plainly and wisely. The student, scholar and philosopher died at 83 in his office among his books.

Since Dr. Bell's time, intensive specialization, vestigial and attenuated, more and more of the less and less, has increased in professional practice. Medications directed by the garrulous salesman of the drug emporium of sundries; and self medication, are more prevalent. It is an interesting psychological fact that the desire to take medicine is perhaps the greatest feature to distinguish man from (other) animals. "Charmed by

drugs but not with wisdom." Plato over 2000 years ago said on specialization, "When all these studies reach the point of intercommunion and connection with one another and come to be considered in their mutual affinities, then, and not till then will their pursuit have a value." Osler thirty years ago said specialization was never so rife and no more dangerous members of the profession than those born into it, so to speak. Physicians are daily bombarded with chemicals and gaudy literature through the mails and too often pay homage to masters of verbiage and conjurors of words, whose magic power is nowhere more manifest than in the plastic language of the advertised medical lure of the day. "What do you read, my Lord?" "Words, words, words," said Shakespeare. Commercialism and greed inspire the literature of the period in which we live, and moneyed success its desideratum. "Accursed thirst of gold, to what dost thou drive the heart of mortals?" Still a little more and a little more. Kahlil Gibran, in his great work, *The Prophet*, says to the covetous rich man: "And tomorrow, what shall tomorrow bring to the overprudent dog burying bones in the trackless sand that follows pilgrims to the Holy City." What is fear of need to him, but need itself? Is not dread of thirst when your well is full the thirst which is unquenchable.

The word "cure," which was formerly the talisman of the vendor of nostrums, and the trademark of the impudent quack now labelled on a package exposed for sale, is a punishable offence by the Government, but the term relief, or efficient remedy, under a catchy name or trademark, though a pain relieving, sleep inducing and habit forming remedy, a narcotic, may be substituted and prescribed over the counter and escape the penalty of the law.

Recently the Yale University Press published an interesting book by Miss Marion King, "Adventures in Veronal, The Recovery of Myself," in which she described her experience with that habit-forming drug. Habit is the tendency or inclination toward an action or condition which by repetition has become easy, spontaneous or unconscious. Habit indeed is a tyrannical and insidious school mistress, stealthily, little by little, she sets her authority upon us. A powerful imagination begets the thing itself.

"Ill habits gather by unseen degrees,  
As brooks run to rivers, rivers swell to seas."

We are masters of habit only at the beginning. Their slavish and dangerous allurements in the case of sleep inducing drugs may wind themselves in the silken meshes of a fascinating net, which may soon prove too strong to admit of breaking.

It is unfortunate that more recent graduates do not become family practitioners, at least for a few years, rather than being absorbed at once in a specialty. As a recent graduate he is faithful and proud in the use of the microscope. He has a fine notion of cells, the blood, etc. but he must take account of the patient as a citizen and a provider and a panoramic view of the conditions under which he has lived. Then he sees the man in a larger way, knows the nature and nurture, the eugenics and the euthenics of the whole family. Should he become a specialist and if possessed of the four T's, tact, temperament, trustworthiness and training, he becomes the highest type of the ideal specialist, and the knowledge of the whole man so obtained may be the means of saving lives doomed by manual dexterity and surgical procedure alone, to failure. He mounts with the eagles instead of staying with the sparrows.

No better work may be inaugurated and maintained than prenatal care and proper maternal nursing by nursing associations and clinics sponsored by the State Board of Health. According to statistics presented by Miss Anita Jones of the Maternity Association of New York to the Health Association of Louisville, recently, of every one thousand live babies born in the United States, 6.6 mothers die, whereas the mortality rate for mothers in Italy, is only 2.6. In England and Wales, 3.4. In Germany, 4.4. Austria, 5.5. This is a severe stigma on the wealthiest and most hygienic Nation in the World. Native born, white American child bearing women of the present day are proportionately better specimens of physique and pelvic formation than their European sisters. They have been better fed and cared for, escaped many of the diseases of childhood, are full of pluck and stamina and not rickety. Inspection shows that they have no deformity of the lower limbs or lower spine. They are well built with broad hips and wide sacral surfaces. How, then, may this large maternal mortality be accounted for? Unnecessary examinations and interference in cases of Eutocia, spectacular new methods and dangerous remedies to hasten delivery and relieve pain, so called Twilight Sleep and the use of pituitrin, I feel confident, are among the unfortunate abuses that tend to that end. The test of labor, rather than the measurements of the diameters of the pelvis obtained at the prenatal clinic in vertex presentations, should determine surgical interference.

Regular examinations, a checking up of all the vital organs of every person over forty years of age, and of every person suspected of not being well, should be a regular procedure of one's family physician at least twice a year. In this age, cursed with nox-

ious drugs, alcohol and nicotine, one out of every ten will be found suffering from some illness or derangement, but not to an extent serious enough to require the services of a physician. We are creatures of heredity, habits and environment and are fortunate if by the former we inherited the grit, the constitution, the "vital rubber" (Osler) physically and morally, to resist the influences of noxious environment and the "wear and tear" of life.

Followers of Venus, Bacchus or Vulcan seldom or never send in bills of health at the seventh decade.

It is unfortunate that too many physicians are led to believe in this age of change, speed and experimentation that the last things we find out are always the best and make us to disrelish all the rest. While we must acknowledge that in the field of therapeutics as in other branches of medical science, remarkable discoveries have been made in the last fifty years many efficacious old remedies have been discarded for new modes of treatment without sufficient practical knowledge to justify their application.

We have wandered too far from some of the reliable drugs of the Pharmacopia and National Formulary, to be influenced by the advertising lure, and gaudy literature of some drug manufacturers, who supply samples of their products free to physicians and often prescribed by a trademark without knowledge of what they contain. Many of them are depressant, pain relieving, habit inducing narcotics, and by their continued use may be responsible for drug addiction, neuroses, and other morbid conditions. I believe we should curb our infatuation for the employment of the needle, and endocrine treatment, stimulate as of old, the emunctories, exact more positive, and better disciplinary measures on the part of our patients, and associate our efforts more intimately with the best six doctors in the world, and none can deny it, sunshine, air, water, rest, exercise and diet.

**Trichinosis:** Fifteen cases were recently reported at Williamsville, New York. This outbreak, like others occurring in the United States, was traced to the eating of raw or improperly cooked pork infected with the parasite *Trichina*. Eight of the fifteen patients were confined to hospitals but no fatalities were reported. The health officer of Williamsville obtained a list of the buyers of the pork thought to be infected and warned them so that if infected they might obtain medical attention early, because treatment is effective only when begun early. The United States Department of Agriculture has prepared a leaflet for free distribution entitled "Trichinosis: A Disease Caused by Eating Raw Pork," giving the life history of the *Trichina*, and symptoms and duration of the disease which it causes.



## WOMAN'S AUXILIARY

### TO ALL WOMEN MEMBERS OF PHYSICIANS' FAMILIES

You are cordially invited to attend the Annual Meeting of the Woman's Auxiliary to the Kentucky State Medical Association which will be held September 7-10, 1931, at McVey Hall on the campus of the University of Kentucky in Lexington. Come and bring your husband who will enjoy and profit by the Annual Meeting of the Kentucky State Medical Association, whose handmaidens we are, held at the same time in Memorial Hall.

This is an excellent opportunity for doctors and their wives to renew their youth by living again the life of a college student in the dormitories, and while rejoicing with old acquaintances, form new friendships among the finest men in the world, the physicians of Kentucky, and their wives.

(Mrs. E. B.) Jessie H. Houston, President  
Woman's Auxiliary to the Kentucky  
State Medical Association.

### COUNTY AUXILIARY CONTEST

The past year has been a busy and interesting one for the County Auxiliaries. The Contest has aroused in them the spirit of friendly competition and members have put forth special efforts to aid their organizations in scoring points.

Many of the parts of the contest have required much time and effort and have brought happy and fruitful returns. Now the time is near for its close but there still remains one point in which you may help score.

Part twelve awards twenty-five points for each Doctor's widow, mother, wife, sister or daughter registered from a county at the 1931 Annual Meeting of the Woman's Auxiliary to the Kentucky State Medical Association. The meeting is to be held at the University of Kentucky in Lexington, September seventh to tenth inclusive.

Not only does attendance at the Annual meeting give members the final opportunity of scoring for their organization, but it is the source of information and inspiration for the following year's work.

It gives every one who attends the opportunity of becoming acquainted with the officers of the State Organization and an insight into their work and plans.

It affords the opportunity of social contact with the wives, and mothers of other men in the profession. It gives a breadth of view and understanding to carry home to help you in working out the problems of your County Organization.

In the past, the members who have attended the Annual Meeting have come away filled with pleasure for the good time they have had and enthusiastic about the work there is for every

one to do.

No one can afford to miss the 1931 meeting. Remember it is your opportunity to educate yourself in Auxiliary work. Also it is your last chance to score in the 1931 contest.

For the Committee,  
Mrs. J. L. Jones,  
Mrs. Harry Venable.

### MARSHALL COUNTY MEETS

The Marshall County Auxiliary enjoyed dinner with the Marshall County Medical Society at the Methodist Church in Benton on Friday evening, June 19th. Special guests were: Dr. A. T. McCormack, Secretary of the State Medical Association, and Mrs. McCormack, Louisville; Mrs. E. B. Houston, President of the Woman's Auxiliary to the Kentucky State Medical Association, Murray, and Dr. C. E. Purcell, eye, ear, nose and throat specialist, Paducah. Following a delightful repast, the Medical Society held its scientific meeting at the church while the members of the Auxiliary drove to the home of Dr. and Mrs. V. A. Stilley and held their meeting on the comfortable porch. Plans for the State Meeting were discussed by Mrs. Houston and a report of the recent annual meeting of the National Auxiliary in Philadelphia was given by Mrs. McCormack. Those present were: Mrs. L. L. Washburn, President; Mrs. V. A. Stilley, Mrs. W. T. Little, Mrs. O. A. Eddleman, Mrs. S. L. Henson, Mrs. Cliff Treas and the honor guests, The State President, Mrs. E. B. Houston and Mrs. A. T. McCormack.

Mrs. Harry Jones, Secretary.

### AT THE A. M. A.

The Annual Meeting of our National organization, The Woman's Auxiliary to the American Medical Association, was held June 8-12, 1931, at the Bellevue-Stratford Hotel in Philadelphia. 1103 members and guests registered. The total membership for the past year, 12,494, was reported from 36 States and the District of Columbia. This shows gratifying growth. For a more detailed account, please read the Minutes and reports soon to be published in the Bulletin of the American Medical Association. Kentucky was represented at this meeting by three delegates—Mrs. George A. Hendon, State President-Elect, Louisville; Mrs. H. M. Meredith, Scottsville and Mrs. Irvin Abell, Louisville. Also by Mrs. A. T. McCormack, the National Recording Secretary for the past two years. Mrs. McCormack was elected a member of the Board of Directors.

### RESUME OF THE A. M. A. ROUND TABLE CONFERENCES

Three Round Table Conferences, with ten minute intermissions, were held from 2:00-4:00 P. M., Monday, June 8, 1931, in the Roof Garden, Bellevue-Stratford Hotel, Philadelphia, fol-

lowing the luncheon given in honor of the National Auxiliary Presidents, five of whom were present—Mrs. S. C. Red, Mrs. John O. McReynolds, Mrs. Allen H. Bunce, Mrs. George F. Hoxie, Mrs. J. Newton Hunsberger and the President-Elect, Mrs. A. B. McGlothlan.

Mrs. J. Ralston Wells, Florida, presided at the first Round Table with "Programs for County Auxiliary Meetings" as the topic.

Free discussion developed that the best meetings are those having planned programs built around definite subjects or activities. Also that the successful organization develops and uses inviting social activities for a part of the time to attract an interest in constructive work and instructive self-improvement.

One activity, a crusade against fraudulent medical advertising in newspapers and magazines, holds promise of much lively discussion. (Reported by Mrs. Ephraim Mulford, New Jersey).

It was disclosed that several State Auxiliaries have seriously considered the Constitution and By-Laws of this Organization whose first object is—"through its members, to extend the aims of the medical profession to all organizations which look to the advancement of health and education."

Self-education of the members, as to just what those aims are, appeared essential, for many felt vague and incoherent when asked definite questions on that score. Consequently, several states have promoted lectures by medical authorities and Study Courses on subjects pertaining to the medical profession, such as the history and progress of medicine. State and National health laws, the control of communicable diseases, and the development of the full-time county health department, with its varying branches of activity from maternal and infant care to securing a pure water supply. (Arkansas, Florida, Georgia, Kentucky, Missouri, Pennsylvania, Oregon.)

These have been used in programs for numerous county Auxiliary meetings.

The Study Course programs proved most successful when held regularly, monthly (or weekly, in some counties), each member taking part with a good leader selected to guide and stimulate interest.

Reference material has been furnished, when requested, by this organization, by the A. M. A., by the State Medical Associations and their Auxiliaries, State Boards of Health, the United States Public Health Service, American Red Cross, Rockefeller Foundation, and others. Medical libraries and public libraries hoard a vast treasure of this information, ready for use. Hygeia, too, has been found excellent reference material for study courses.

Buffet luncheons and picnics followed by musical programs, dramatics, book reviews, lessons in contract bridge, study courses, sewing units for the Red Cross, local hospitals and

clinics were reported. (Mrs. Willard Barlett, Missouri, and others.)

Some County Auxiliaries meet at the same time and place as their respective medical societies, with dinner or supper together, then separate sessions in adjoining or nearby rooms (Mrs. T. O. Freeman, Illinois, and others.)

One Auxiliary reported a successful open meeting with a particularly well planned program to which members and eligible non-members of adjoining County Auxiliaries were invited.

The development of plans for the raising of proceeds for Medical Student Loan Funds was the subject of numerous County Auxiliary meetings and included in the list of resulting activities are: conducting a tea shop for one month (Reported by Mrs. Edward Clay Mitchell, Memphis, Tennessee); conducting a sandwich shop at the State Fair and the serving of suppers and dinner for clubs, etc. (Mrs. Holliday, Athens, Georgia); card parties, musical and dramatic entertainments by several.

Hygeia subscriptions were obtained for rural schools and libraries by funds raised through the sale of the Red Cross Christmas Seals and by theatre parties. (Mrs. M. P. Ravenel, Missouri.)

A program that will doubtless appeal to many was reported as an annual affair. It is the entertainment of the mothers of physicians on a special day planned for them and designated as theirs. (Mrs. A. J. Casselman, New Jersey.)

Mrs. A. Haines Lippincott, New Jersey, presided at the second Round Table with the topic: "The Technique and Value of a Committee on Public Relations." Mrs. Lippincott introduced the subject with the following: "The objects of a Public Relations Committee of the Woman's Auxiliary to the American Medical Association are to form contacts with other women's organizations and to suggest programs to them for the advancement of health and health education which shall be commensurate with the aims of the medical profession."

The value of the use of tact in the development of our technique in Public Relations work, if our efforts are to be fruitful, was emphasized along with the suggestion that we affiliate ourselves with other organizations. (Mrs. A. A. Herrold, Louisiana.)

The necessity, always, for the approval of the Advisory Council of the County Medical Society for all new projects was distinctly brought out. (Mrs. G. H. Mundt, Illinois; Mrs. J. H. Hoxie, Missouri; Mrs. W. J. Freeman, Pennsylvania; Mrs. S. S. Hesselgrove, Minnesota.)

Stating that she believed that the best service to the profession by the members of the Auxiliary could, doubtless, be rendered through their work with the Women's Clubs, Mrs. McReynolds found in a recent Auxiliary survey that the average number of clubs to which each



member belongs is 3 and that one Auxiliarite held membership in 17. (Mrs. J. O. McReynolds.)

Improvement is often possible through a pre-survey of the programs in the year book of any club by the wife of a physician who recognizes sound health teaching and authoritative health lectures, and thus keep the misinformation of the quacks and frauds from being perpetrated upon the unsuspecting club members. (Mrs. Willard Bartlett, Missouri.)

Examples of co-operation with other organizations were shown in the Pre-School Round-Up of Georgia which is sponsored by the P. T. A., with a member of the Auxiliary as its leader; the Y. W. C. A. Training Courses for Motherhood and for child training in New Jersey; also, the Auxiliary workers in New Jersey secure speaking engagements at clubs for the speaker employed by the Medical Society; the publication in the "Club Woman," official organ of the State Federated Clubs, of the 9 lessons in the Study Course in Medical and Health Laws prepared by the Kentucky Auxiliary.

Mrs. Samuel Clark Red presided at the third Round Table on the subject "History and Archives." She urged that every State Auxiliary begin at once to bring its history up-to-date, if that work had not already been done. She stated that she hoped that the accurate detail of the history of this organization would soon be available and told some amusing anecdotes of its early life, including the difficulty of securing a name for the body. One of the first suggestions was that the organization be called "The Wives of Aesculapius."

The advisability of properly caring for the State Archives in a fireproof vault was stressed by Mrs. Walter Jackson Freeman, who announced that the State Historian has brought the Pennsylvania records to date.

Scrap books are being kept by a number of the states.

Upon request, Mrs. Red exhibited a copy of her book, "The Medicine Man in Texas," off the press last December, and briefly described it, crediting members of the Texas Auxiliary with valuable assistance in securing much of the source material. The book is an interesting narrative history of the medical profession in Texas beginning early in the sixteenth century and presented in attractive form.

(Mrs. Arthur T.) Jane Teare McCormack.  
Recording Secretary.

#### NEWS ITEMS

Dr. Lee Palmer announces the removal of his office to 719 Heyburn Building, Louisville, Ky., June 15, 1931. Diseases of Children. Hours: 2:00 to 4:00. By appointment. City 4460.

Dr. C. J. Armstrong announces the removal of his office June 12, 1931 to 1119 Heyburn Building, Louisville, Ky. Surgery (general and

plastic). Hours: 2:00 to 4:00 and by appointment. Telephone: City 707.

#### BOOK REVIEWS

THE SURGICAL CLINICS OF NORTH AMERICA — (Southern Number, August 1930) (Issued serially, one number every other month.) Volume 10. No. 4. (Southern Number—August 1930) 268 pages with 96 illustrations. Per clinic year (February, 1930 to December, 1930) Paper, \$12.00; Cloth, \$16.00. W. B. Saunders Company, Philadelphia and London.

This volume contains contributions from the leading medical centers in the Southern states, including Tennessee, Virginia, North and South Carolina, Kentucky, Alabama and Louisiana. The contributors are surgeons who have done distinctive work in their various fields. Among other articles that of Irvin Abell, of Louisville, is especially thorough in its discussion of cardiospasm. The number of articles is too great to be taken up individually.

VARICOSE VEINS—With Special Reference to the Injection Treatment. By H. O. McPheeters, M. D., F. A. C. S. Director of the Varicose Vein and Ulcer Clinic, Minneapolis General Hospital; Attending Physician New Asbury and Fairview Hospitals; Associate Staff of Northwestern Hospital, Minneapolis, Minn.

Illustrated with half-tone and line engravings. F. A. Davis Company, Publishers, Philadelphia. Price \$3.50.

This book contains a resume of a most thorough investigation of the literature throughout the world—wherever this work has been done. Combined with the care and treatment of approximately 800 cases actually treated. Most of these cases occurred in the out-patient department of the Minneapolis General Hospital, where the author has charge of the varicose veins and ulcer work. The latest and most effective methods are given in complete detail.

DIAGNOSTIC METHODS AND INTERPRETATIONS IN INTERNAL MEDICINE. By Samuel A. Loewenberg, M. D., F. A. C. P., Assistant Professor of Clinical Medicine, Jefferson Medical College, Assistant Physician to Jefferson Hospital, Visiting Physician to the Philadelphia General Hospital, Northern Liberties Hospital and the Eagleville Sanitarium for Consumptives, formerly Assistant Professor of Physical Diagnosis at Medico-Chirurgical College and University of Pennsylvania. With 547 illustrations. Some in colors. F. A. Davis Company, Publishers, Philadelphia. Price \$10.00.

This book aims to cover the field of diagnostic internal medicine, it gives the instructions on the various methods of handling patients, descriptions of normal findings, enumeration of pathologic conditions. There is a splendid chapter on the laboratory interpretations and only the simplest chemical methods are described as it behooves the physician more to know what laboratory findings mean than to endeavor poorly to make the actual tests.

**TEXT-BOOK OF MEDICINE** (Second Edition) Edited by Russell L. Cecil, A. B., M. D., Sc. D., Assistant Professor of Clinical Medicine in Cornell University; Assistant Visiting Physician in Bellevue Hospital, New York City. And Associate Editor for Diseases of the Nervous System, Foster Kennedy, M. D., F. R. S. E., Professor of Neurology in Cornell University; Head of Neurological Department, Bellevue Hospital. Second Edition, Revised and Entirely Reset. 1592 Pages. Philadelphia and London. W. B. Saunders Company, 1930. Cloth, \$9.00.

The new edition brings together 135 specialists who have collaborated to present all those diseases that usually come to the general practitioner.

The entire book was prepared under the editorial supervision of Dr. Russell L. Cecil who carefully selected the authors most competent, in his judgment, to present the various subjects. He maintained the arrangement and style of the book, and he insisted that the book conform to utility and avoid discussions of controversial developments. In his selection of authors, Dr. Cecil was particularly fortunate. They are teachers in medical schools, and their authoritative presentations are in a form specially acceptable to all those interested in the study and application of medical knowledge.

The authors present each disease in great detail, following a logical order. In discussing lobar pneumonia, for instance, the contributor gives under separate headings a definition of the disease, the history, etiology, incidence and distribution, epidemiology, carriers, morbid anatomy, symptoms in detail, physical signs, complications, diagnosis, prognosis, treatment, and prophylaxis. No finer book on medicine is to be had.

For the new edition the entire book was reset because the revision carried out by the contributor was so thorough. It now represents today's approved practice. In addition to the hundreds of changes throughout the book, there are entirely new chapters on tularemia, snake venom poisoning, atelectasis of the lungs, creeping eruption, oryza fever, brucella abortus infections, essential hypertension, aganulocytic angina, and arthritis.

**SURGICAL AND MEDICAL GYNECOLOGIC TECHNIC.** By Thomas H. Cherry, M. D., F. A. C. S. Professor of Gynecology, New York Post-Graduate Medical School and Hospital; Director of Gynecology, Pan-American Hospital, New York City; Visiting Gynecologist, St. Mark's Hospital, New York City; Consulting Gynecologist, Morristown General Hospital, Morristown, N.J.; Formerly Instructor in Operative Gynecology, New York Post-Graduate Medical School and Hospital; Former Visiting Gynecologist, Harlem Hospital, New York City; Member of American Medical Association, Pan-American Medical Association, American Urological Association, New York Academy of Medicine, Military Surgeons; Major, Medical Corps, U. S. A. R.

With 558 Half-tone and Line Engravings, from Photographs and Pen and Ink Drawings by the author. F. A. Davis Company, Publishers, Philadelphia.

Includes all the operative procedures encountered in a gynecological service. Ordinary conditions are clearly described and these as well as the unusual complicated pathology are discussed and illustrated in minute detail.

The medical technic is taken up with great care, including the treatment of office patients. The really fine drawings were most painstakingly done by the author himself and unusual situations and common mistakes are clearly defined.

To the physician who has had and comprehends surgical technic with especial leaning towards gynecology, this book will help him select proper standard operative procedures for those patients requiring surgical intervention.

**MANUAL OF THE DISEASES OF THE EYE FOR STUDENTS AND GENERAL PRACTITIONERS.** By Charles H. May, M. D., Director and Visiting Surgeon, Eye Service, Bellevue Hospital, New York, Consulting Ophthalmologist to Mt. Sinai Hospital, French Hospital, New York, Monmouth Memorial Hospital. Formerly Chief of Clinic and Instructor in Ophthalmology, College of Physician and Surgeon, Medical Department, Columbia University, New York. Thirteenth Edition, Revised with 374 illustrations, including 23 plates, with 73 colored figures. William Wood and Company, Publishers, 156 Fifth Avenue, New York. Price \$4.00 net.

This book has been carefully revised, whole chapters having been rewritten. Many alterations, a few illustrations and some additions have been incorporated in the text whenever these seemed to be an improvement. The slit lamp and corneal microscope



are thoroughly described as these instruments are very valuable in clinical examination; this description is taken from Mr. T. Harrison Binter of England. The colored plates present the common external diseases of the eye, and those changes in the fundus, the recognition of which is important in connection with general diseases including affections of the nervous system. A very valuable book for the student and practitioner.

**THE SURGICAL CLINICS OF NORTH AMERICA.** (Issued serially, one number every other month). Volume 10. No. 3. New York Number—June, 1930). Octavo of 265 pages with 123 illustrations. Per Clinic Year, February, 1930 to December, 1930. Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1930.

Contributors to the New York number are varied and numerous. The article by C. J. Imperatori on foreign bodies in the bronchi is outstanding. Other important discussions are those on fractures of the spine by W. L. Sneed and H. E. Reading, surgery in pulmonary tuberculosis by W. F. Hanan, and chronic infections of nasal accessory sinuses by Hurd.

**CONCERNING THE ORIGIN AND DEVELOPMENT OF THE CHORION, AMNION AND YOLK SAC. THE GREAT IMPORTANCE OF THE CORONA RADIIATA CELLS.** By Frank A. Sthal, M. D. Rush 1887; one time Demonstrator of Obstetrics, Rush Medical College.

This publication is the fourth of a series of five researches concerning the histology and physiology of the early Ovum.

**ALLERGIC DISEASES; THEIR DIAGNOSIS AND TREATMENT.** By Ray M. Balyeat, M. A., M. D., F. A. C. P. Lecturer on Allergic Diseases in the University of Oklahoma Medical School; Consulting Physician to St. Anthony's Hospital, and to the State University Hospital; President-Elect of the American Association for the Study of Allergy; Director of the Balyeat Hay-Fever and Asthma Clinic, Oklahoma City. Illustrated with 87 Engravings, including 4 in colors. Third Edition, revised and enlarged. F. A. Davis Compnay, Publishers, Philadelphia. Price \$5.00.

The awakened interest by the medical profession in the study of asthma, hay-fever, urticaria, and migraine is responsible for the republishing of this edition. Much research has been done recently in the allergic diseases and this has been incorporated in the work

with the addition of eight new chapters. The discussion of the flora of the United States in reference to the pollinated plants is especially thorough. The routine management and the specific treatment for every hay fever and asthma is carefully outlined.

**BURNS, TYPES, PATHOLOGY, AND MANAGEMENT.** By George P. Pack, B. S., M. D., Fellow of the Memorial Hospital, New York City; Formerly Professor of Pathology and Lecturer in Minor Surgery, the School of Medicine, University of Alabama; One time Instructor in Pharmacology and Toxicology, Yale School of Medicine; One time Assistant in Pathology, Ohio State University; Member American Physiological Society; American Association of Pathologists and Bacteriologists etc., and by A. Hobson Davis, B. S., M. D., Instructor in Pathology, University of Alabama. 60 illustrations, 364 pages. Published by J. B. Lippincott Company, Philadelphia, Pa. Price \$6.00.

Because of the greatly increased occurrence of burns in the more and more complicated fields of industry, the subject becomes a crucial import to every practitioner. The very wide group of materials which in one way or another causes burns is augmenting daily. The fact that in all industries inflammable and explosive agents are in constant usage, often by unskilled and careless workmen, obligates the profession to acquaint itself with the subject in its widely and diversified forms and particularly as to the prompt and most satisfactory method of treatment demanded in each special instance. The author of this book from his detailed knowledge both from practical experience and intensive study of the literature of the subject is particularly qualified to write in this field.

**MICROBIOLOGY AND ELEMENTARY PATHOLOGY FOR USE OF NURSES.** By Charles G. Sinclair, B. S., M. D., Major Medical Corps, U. S. Army. Instructor in Bacteriology. Army Medical Society; Instructor in Microbiology and Pathology Army School of Nursing, Washington, D. C. With 102 illustrations. Some in color. F. A. Davis Company, Publishers. This book has been prepared with the objective of presenting aspects of Microbiology and of Elementary Pathology of interest and importance to the student nurse and from the student nurses point of view. It is designed to satisfy the classroom and laboratory requirements of the course prescribed in the standard "Curriculum For Schools of Nursing of the League of Nursing Education."

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NEXT MEETING LEXINGTON, SEPTEMBER 7-10.

## COUNTY SOCIETY REPORTS

**Adair, Green, Marion and Taylor:** Representatives of the medical profession of four counties met in Campbellsville June 12th., 1931. Dr. Jethra Hancock and Mr. J. F. Blackerby of the State Board of Health addressed the meeting on subjects relating to their respective departments in the organization. Dr. Howard Rice, D. D. S., also read a paper, "Dental Disturbances with Systemic Results."

At the business meeting reorganization of the Tri-County Society was affected. Marion County accepted an invitation to cooperate in the joint meetings. One meeting each year will be held in each county, beginning with Lebanon in May, Columbia in June, Greensburg in September and Campbellsville will be the location of the annual banquet in December. Each county society shall have control of the program and arrangements of the meeting within its borders. The identity of each county organization shall be retained and its business carried on as before.

W. B. ATKINSON, Secretary.

**Scott:** The Scott County Medical Society held its regular monthly meeting, Thursday noon, June 4, 1931, in the Methodist Church.

The meeting was called to order by the president, Dr. W. S. Allphin. Members present: Drs. Johnson, Davies, Allphin, Barlow and Cull.

Visitors: Drs. Graffe, Beume, Locke, Ellis, Holland, Boggess and Porter. Nurses: Misses Allphin, Sutton, Swiniford, and Williamson, all connected with the State Public Health Department.

Dr. C. E. Barlow gave a very interesting description of the "Anatomy of the Eye"; also, of the common diseases associated with it.

The Society adjourned, to meet the first Thursday in July. L. L. CULL, Secretary.

**Franklin:** The regular monthly meeting of the Franklin County Medical Society was held in the Club Room of the Capital Hotel on Thursday, June 4th.

Members present were: Drs. Lyon, Budd, Travis, Ginn, Coleman, Minish, Stewart, Demaree and Youmans.

Reading of the minutes of the last meeting was omitted.

Dr. Demaree had charge of the program and had as his guest, Mr. Clarence Hinkle, of Louisville, a representative of Parke, Davis & Co., who gave an illustrated lecture with motion picture films, showing views of their plant and the manufacturing of their valuable products. This was very interesting.

The members present agreed not to have the regular monthly meetings during the months of July and August.

The Society then adjourned to the Hotel Dining Room for lunch.

C. E. YOUMANS, Secretary.





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ANNUAL NUMBER

# KENTUCKY MEDICAL JOURNAL



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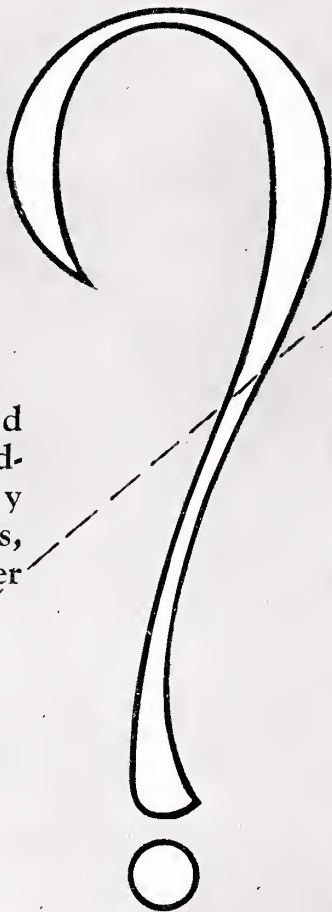
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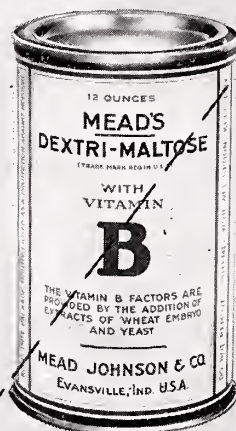
You Are On



Should mothers feed  
their babies by free med-  
ical advice given by  
neighbors, newspapers,  
manufacturers and other  
busybodies — or —



Should the problem  
of infant-feeding be  
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# KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

VOL. 29 No. 9

BOWLING GREEN, KY.,

SEPTEMBER 1931

## EDITORIALS

### ENTERTAINMENT

The attention of the membership of the Association is called to the action of the Council and the House of Delegates last year that in the future entertainment at State Meetings be limited to mutual dinners and luncheons without expense to the local Society.

This departure from our previous practice in Kentucky should be understood and appreciated by the membership. The attendance at our Annual Meetings has become so large that we can only meet in a few cities and at the state educational institutions. The burden of entertainment at the Annual Meetings has become considerable on the members of the local professions. For this reason it was determined that hereafter, including the coming meeting at Lexington, the local Committee on Arrangements would provide such luncheons and dinners as it felt would be of value and that the members who participated in them would each pay his own part. This plan has been adopted practically everywhere and we feel sure will prove satisfactory to everyone.

It is important to the members to realize also that the dormitory space available at Lexington will be limited to about 250. Naturally, these 250 dormitory rooms will be assigned to those first applying and others will be sent to the splendid hotels in Lexington.

The members of the Association in attendance at Lexington will have an opportunity of attending the dedication of the new Good Samaritan Hospital, which has just been completed. Following the dedication a delightful reception will be held at the hospital. This will follow Doctor Judd's address on Wednesday evening.

On Tuesday afternoon the members of the Auxiliary will be taken for a drive about historic Lexington and to the famous stock farms in the vicinity. The Auxiliary will have their luncheon at the cafeteria in McVey Hall at noon on Tuesday. The Association will give a luncheon in honor of the Auxiliary and its guests at the Lexington Country Club on Wednesday.

The Journal takes this last opportunity of saying to the members that no one of them can afford to miss the fine post-graduate course Doctor Kavanaugh has arranged in the scientific program.

### THE DORMITORIES AT LEXINGTON

Direction arrows will be placed on all of the roads entering Lexington, so that those coming by automobile will have no difficulty in finding the dormitories and the place of the meeting.

The dormitories are not equipped with private baths, but for each four rooms there are conveniently located, shower baths, and in Breckinridge Hall each bed room will have a sitting room. Towels, sheets, blankets and soap will be supplied for every guest. The rooms in the dormitories are very spacious, with comfortable beds, at a very small rate of \$1.00 per day.

### THE GOLF TOURNAMENT

The Golf Tournament for the Lexington Meeting will be played over the Lexington Country Club, and Dr. G. H. Herring has been elected Chairman of the Golf Committee. The tournament can be played any time beginning Saturday, September 5th, through Wednesday, September 9th. The score cards must be deposited at the registration desk in the Memorial Hall, not later than 10 A. M. Thursday, September 10th.

Mrs. L. C. Redmon, Lexington, has been appointed Chairman of the Golf Committee for women.

The green fees at the Lexington Country Club are \$3.00, but concessions have been made to the members of the Kentucky Medical Association, and these fees have been reduced to \$1.50. All members of the Association have been extended the privilege of the golf course and the club house. Attractive lunches will be served at a moderate cost.

According to the resolutions passed at the Bowling Green session, the members of the Fayette County Medical Society are not permitted to spend money for the entertainment of the Association, and everything will be on a pay-as-you-go plan.

## OUR GUEST OF HONOR



✓  
E. Starr Judd, M. D., Rochester, Minn.  
President American Medical Association



## OUR GUEST OF HONOR

Our guest of honor this year will be Dr. E. Starr Judd of Rochester, Minn., President of the American Medical Association. Dr. Judd is widely known to the medical profession of America as a most competent and practical surgeon.

He was born in Rochester, July 11, 1878. After preliminary general education he received his degree in medicine from the University of Minnesota School of Medicine in 1902. He served his internship in Saint Mary's Hospital in Rochester and thereafter became first assistant to Dr. Charles H. Mayo. Since that time he has progressed steadily in the work of the Mayo Clinic, heading one of the sections in the division of surgery. He has aided education in surgery, serving as professor in the Graduate School of the University of Minnesota. Dr. Judd has been constantly active in organizational work in county and state medical societies and has been president of the Minnesota State Medical Association. During the war he was a major in the Medical Officers' Reserve Corps and on active duty as director of a school of instruction in anesthesia and surgery, reaching finally the rank of lieutenant colonel. In many scientific medical organizations devoted particularly to surgery, including the Western Surgical Association, the American Surgical Association, the Society of Clinical Surgery and the American College of Surgeons, he has been a constant attendant and participant in the programs. From the time of his entrance into surgical practice, Dr. Judd has contributed extensively to the periodical literature of his subject, especially abdominal surgery. His fundamental investigations are recognized for their merit both in this country and abroad. His contributions have won for him the recognition of his colleagues as a competent leader in this field.

THE AMERICAN BOARD OF  
OTOLARYNGOLOGY

An examination was held in Los Angeles, May 27th, 1931, during the session of the Pacific Coast Society. Seventy-seven candidates were examined, of which fifteen were conditioned or failed.

An examination was also held in Philadelphia, June 8th, during the meeting of the American Medical Association. Ninety-eight candidates were examined, of which eight were conditioned or failed.

The Board will hold an examination in Indianapolis, September 12th, just preceeding the meeting of the American Academy of Ophthalmology and Otolaryngology, which will be held at French Lick, September 14th to 19th. Prospective applicants for certifi-

cate should address the Secretary, Dr. W. P. Wherry, 1500 Medical Arts Building, Omaha, Nebraska, for proper application blanks.

## THE UNIVERSITY OF KENTUCKY\*

HELEN KING

Lexington.

The University of Kentucky will welcome the Delegates to the 81st Annual Session of the Kentucky Medical Association on the University campus September 7 to 10.

It is very fitting that the annual meeting of the Kentucky Medical Association should be held in Lexington the cradle of the medical profession in the west, for it was in Lexington and at Transylvania University, the oldest college west of the Alleghanies, that the profession of medicine was introduced into the great northwest.

The Southern Surgical Association held its annual meeting in Lexington in the fall of 1930, and among the guests present were representatives of surgery from throughout this country. The medical library at Transylvania was open to those delegates as it will be to the members of the Kentucky Medical Association, and this library, containing the oldest records of the medical profession in the west, is in itself an interesting drawing card to delegates.

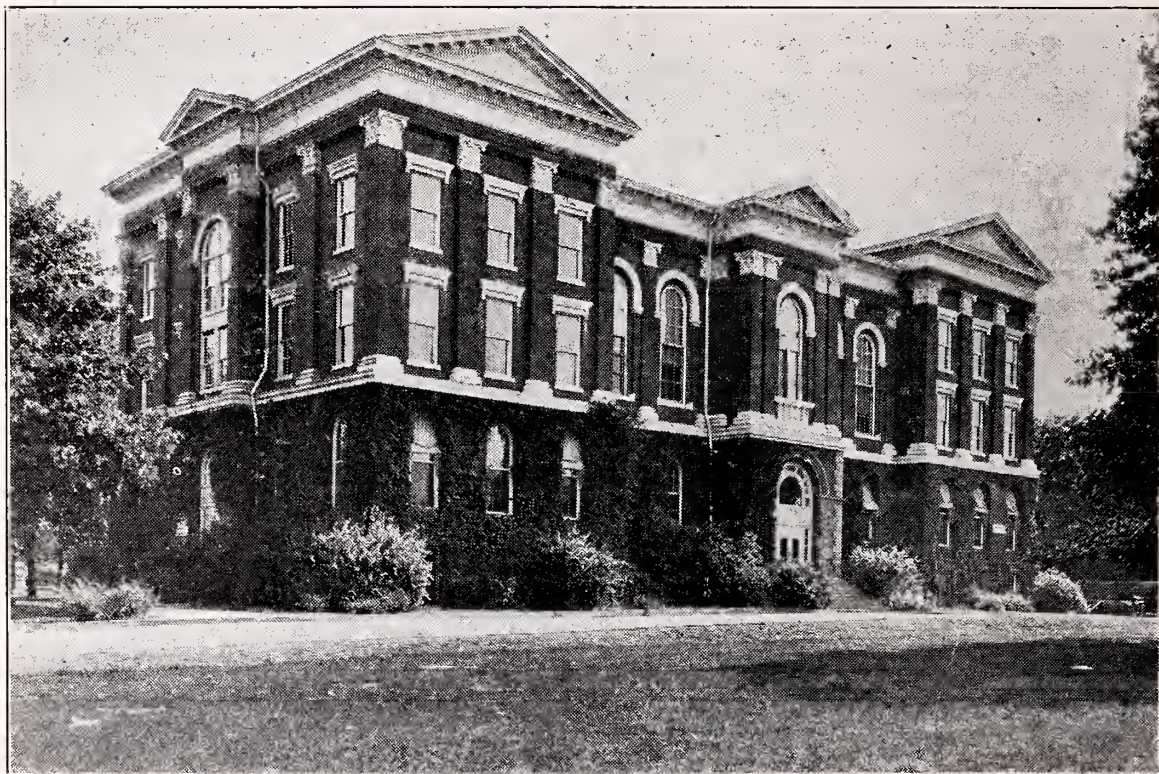
Lexington, the home of the University of Kentucky is a modern city of approximately 68,000 people. It is ideally located for a convention spot, offering as it does opportunities to visit some of the most noted thoroughbred breeding farms in the country. It was the home of Henry Clay and other such famous orators and statesmen as Breckinridge, Bradley and Kincaid. Mary Todd, wife of Lincoln, was born in Lexington and the University of Kentucky itself is part and parcel of its colorful history.

John and Sarah Maxwell, the first newlyweds to build their log cabin outside the walls of Fort Lexington, laid claim to that plot of ground which is now part of the campus of the University of Kentucky, and Patterson Hall, residence hall for women, now stands where the Maxwell's erected their little log home. The ground upon which the main section of the campus is laid out was then known as Maxwell woods, and the president's house on the campus is called Maxwell Place.

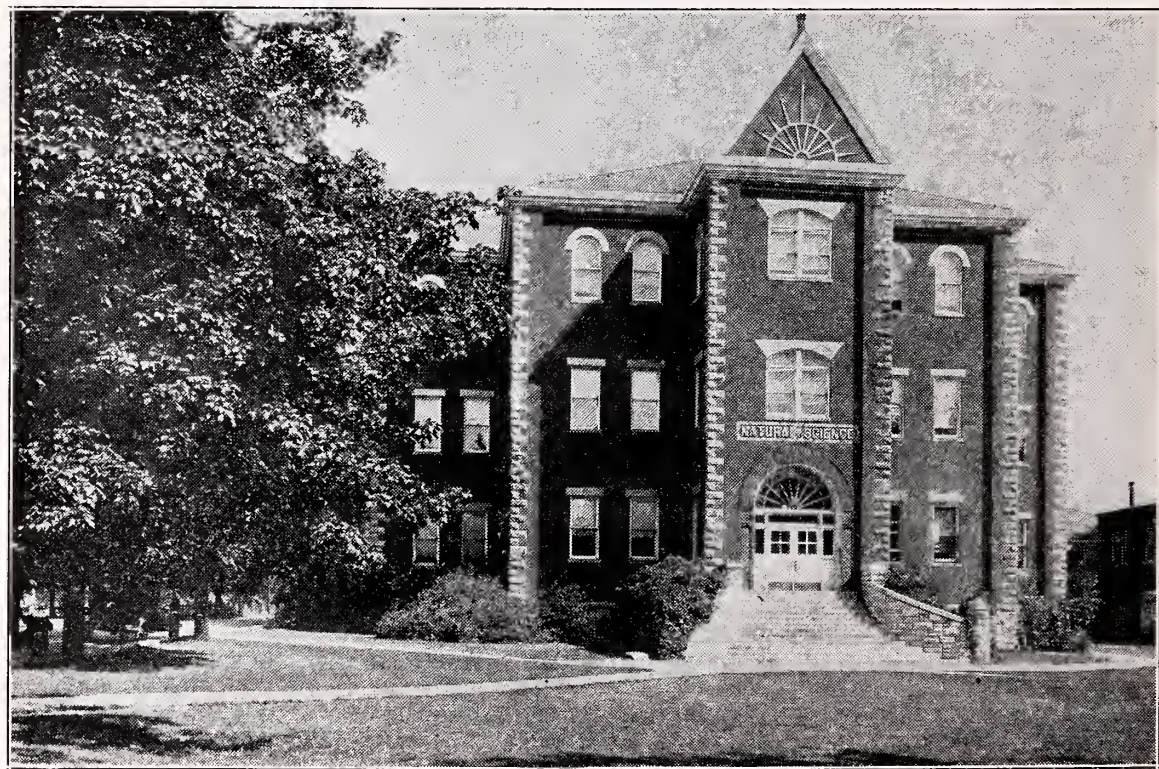
The University of Kentucky is the largest institution for higher education in the commonwealth, and more than 3,000 students were enrolled for the second term of the 1930-31 school year which began in February. The University has enjoyed a phenomenal growth since 1918, when, with the advent of Doctor Frank L. McVey, as president, the

\*Publicity Bureau, University of Kentucky.





Administration Building



Science Building



name of the institution was changed from State College to the corporate title of University of Kentucky, placing it in the broader category of state universities.

Although the idea of establishing a state agricultural and mechanical college had its inception with the passage of the Morrill Land Grant Act of 1862, which granted each state 30,000 acres of land to be sold for the establishment of such institutions, the sale of the land granted the state of Kentucky brought the small returns of approximately \$165,000, a sum too small for the purpose.

Failing then in its original intention, in 1865 the money was used by the Kentucky Legislature to inaugurate an agricultural and mechanical department of what was then Kentucky University (Transylvania) a fusion which proved very unsatisfactory and which was later rectified. However it was fifteen years after other states had started their agricultural and mechanical colleges on a fair road to development that the Agricultural and Mechanical College of Kentucky was established as a separate and independent institution.

In 1908, with the introduction of the College of Law, the name of the Agricultural and Mechanical College was changed to the State College of Kentucky the new department having changed the status of the in-

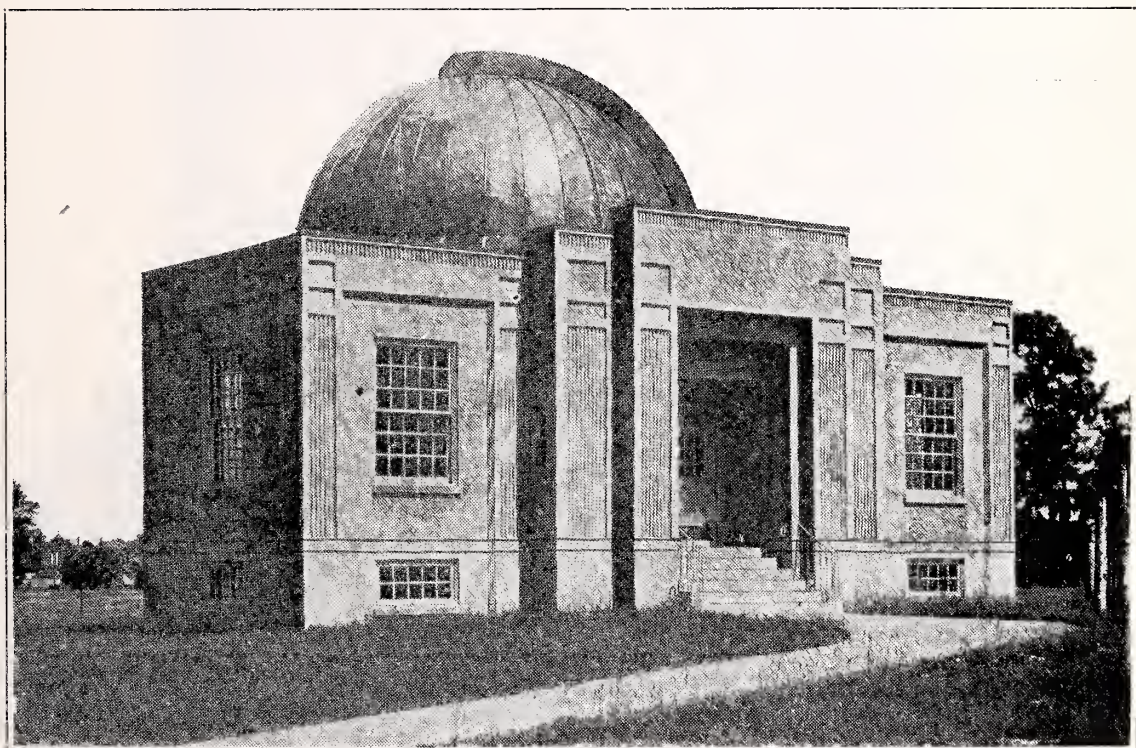
stitution from a strict agricultural and mechanical grouping.

In spite of the fifteen years of retarded progress in the history of its beginning, the University of Kentucky is one of the most forward looking state universities in the country, serving the people in various fields of education, research and agricultural development.

Its instructional activities are great, but there are other services equally important, which it renders the people, offering as it does, laboratories for research and experiment in the fields of municipal government, agriculture, science and general development for the use of the public.

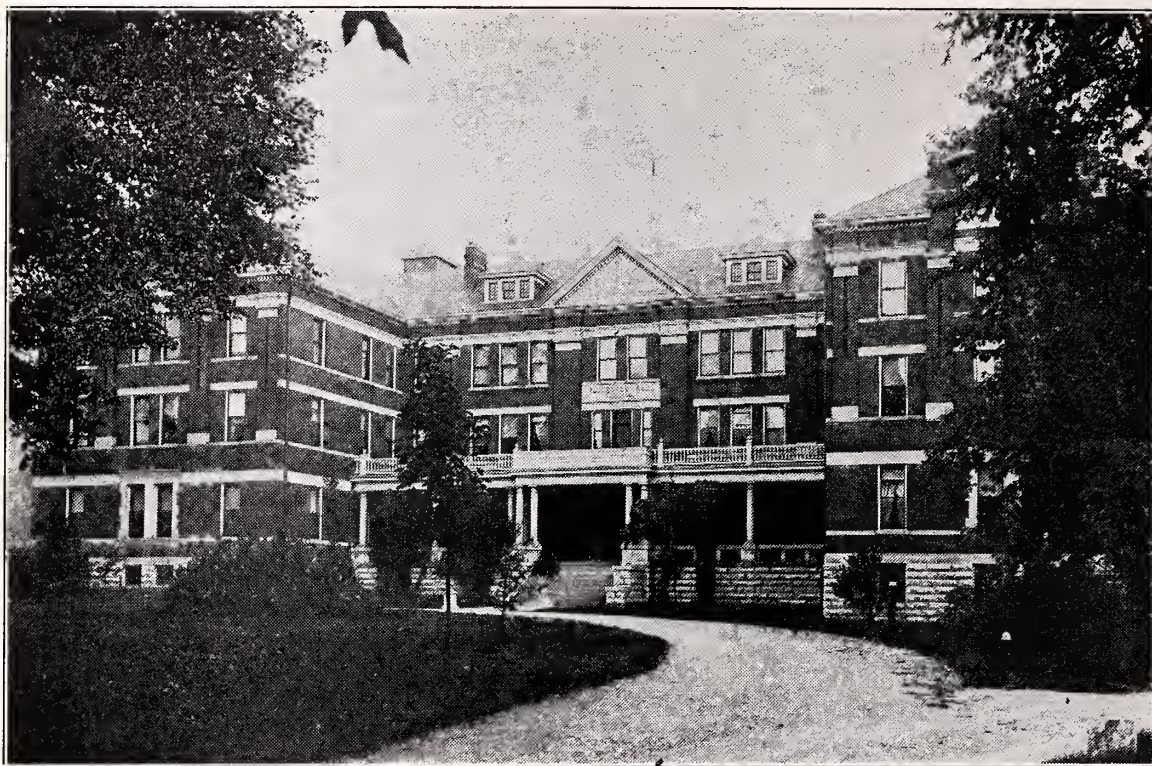
The department of Agricultural Extension, the bureaus of School Service, Municipal Affairs, Business Research, Visual Education, the Personnel Bureau and the Placement Bureau; the department of University Extension and the Agricultural Experiment Stations all offer to the people of the commonwealth a service whose value is inestimable in the working out of the problems of various communities and of the state at large.

The head of the department of Hygiene and Public Health at the University of Kentucky has recently made a decided contribution to medical science with the publication of a re-



Observatory



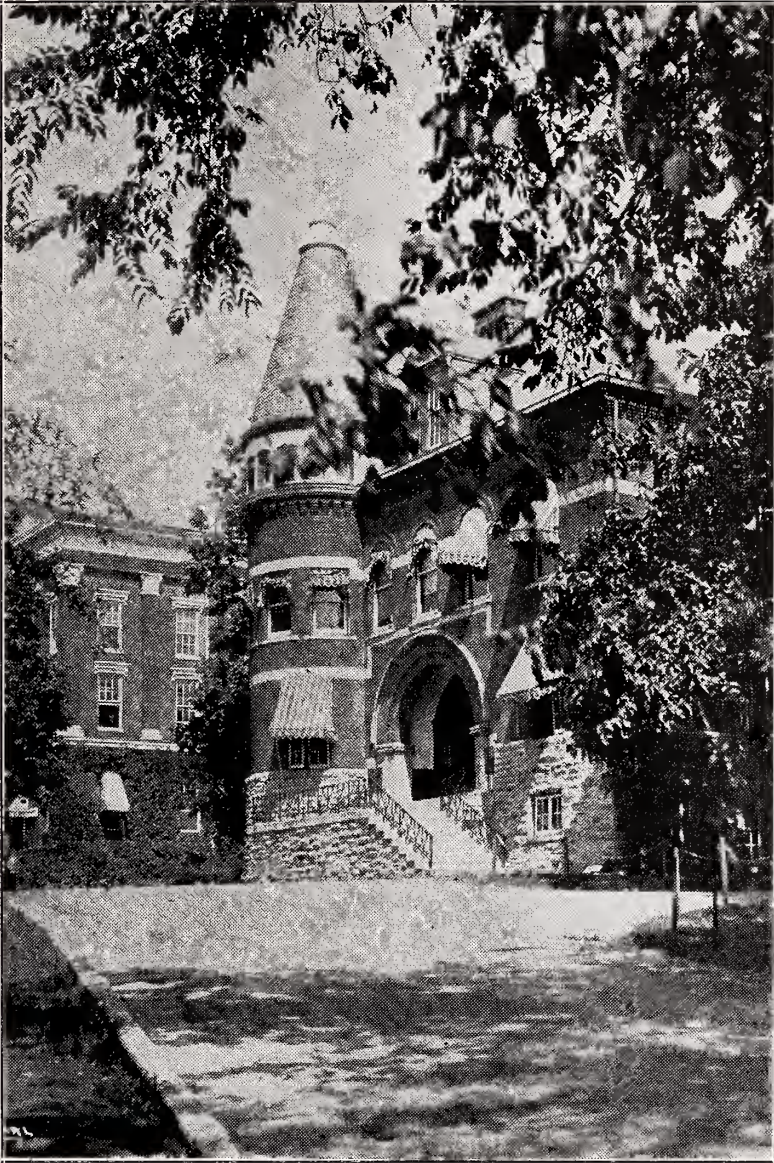


Patterson Hall



Kastle Hall





Law Building

search bulletin on "Medical Service in Kentucky." This department also maintains a free clinic for faculty and students with a staff of four doctors, a laboratory technician and resident nurses in the dispensary and residence halls.

This department also broadcasts talks periodically on health topics from the University remote control radio studios in connection with station WHAS, a series of such talk having been recently given by a member of the department of Hygiene.

The members of the department of Hygiene and Public Health at the University of Kentucky, in co-operation with the local committee on arrangements for the Medical Association convention, will do everything in their

power to make the visit of the members of the association an interesting and profitable one.

Memorial Hall, the beautiful building which was constructed by the citizens of the state and dedicated to the Kentuckians who lost their lives in the World War, will be the scene of the general convention meetings. Dicker Hall, the College of Engineering, a beautiful rustic convocation hall which Dean Anderson maintains as a recreation room for his engineers, will be the meeting place of the delegates. The assembly room in the new McVey Hall has been reserved for the meetings of the woman's auxiliary.

The fine new dormitories for men will be thrown open to the delegates to the Kentucky



Medical Association meeting and accommodations of the first order will be available. Everything which might contribute to the entertainment and comfort of her guests has been carefully planned by the University in order that this may be the most successful of conventions for the University of Kentucky is very proud that the representatives of the medical profession in Kentucky have chosen her campus as a meeting place.

Just completed at a cost of \$400,000 with equipment costing \$30,000 more, the new University of Kentucky library represents the last word in library construction as regards utility and efficiency. The building is fireproof, of Georgian architecture and consists of four floors and basement. The stack section is in a separate portion of the building and has eight levels. In the va-

rious reading, browsing, and seminar rooms, seats are provided for more than 500 persons. A total of 200,000 books can be contained within the present structure with ease. A staff of 15 full time and 20 student employees is necessary to properly man the building.

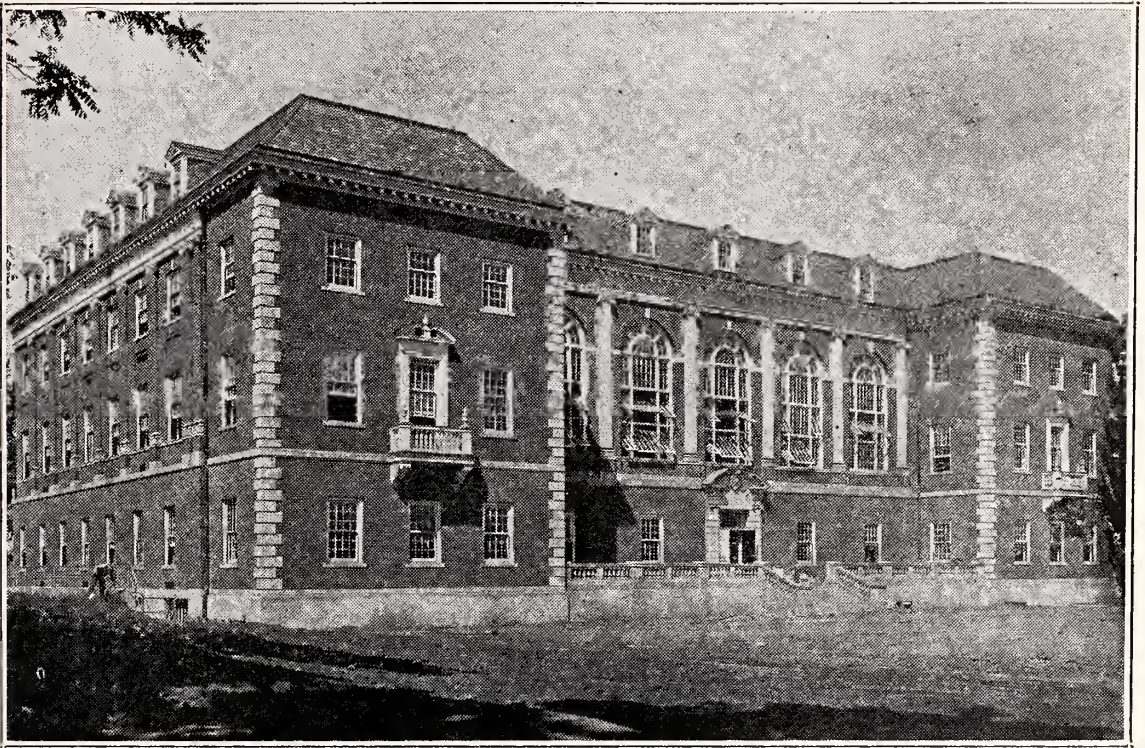
The first floor contains a large main lobby which will be used as a museum for rare books, coins, etc. Glass wall cases will house poster displays and announcements of new books. A check room off of this lobby will be maintained for the convenience of visitors. To the west of the main lobby is the reserve reading room and to the east is the periodical reading room. At the present time about 750 periodicals are regularly received by the University of Kentucky library.

On the second floor is another fair sized



The College of Engineering





New Library

lobby containing the loan desk and the general card index files. Back of the loan desk is the main entrance of the stacks. To the north of this lobby, a long room illuminated with soft indirect lights, and upholstered in restful overstuffed furniture is set aside as a browsing room, a location where students and faculty can relax, help themselves to the books on the shelves at will, and read for the sheer pleasure of it. This browsing room gives a fine view on an expanse of campus in front of the building. The east wing on this floor contains the offices of the employees of the library, bibliography room, cataloging department, as well as another storage vault. The office of Mrs. W. T. Lafferty, in charge of women's club work throughout the state, is also in this section.

Ninety individual study booths or carrels have been constructed in the stacks for members of the faculty and advanced students who must do research with a large number of books at hand. An automatic elevator and booklift gives service to all floors of this building. Cork floors are used throughout. A special system of stairways behind the stacks are available for employees, and rest rooms are conveniently located throughout the building. It is planned to place in the building portraits of past presidents and faculty members of the University.

#### THE ANNUAL MEETING OF THE EYE, EAR, NOSE AND THROAT SECTION

The eleventh annual meeting of the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association will be held in McVey Hall, Lexington, beginning Monday morning, September 7th. Elsewhere in this issue will be found a complete program, and the entire profession is cordially invited to attend this meeting, which, as will be observed, is held on the day preceding the general session.

This meeting was to have been held in Bowling Green in May, but due to the untimely, tragic death of Dr. J. A. Stucky and their guest of honor speaker, Dr. R. C. Lynch, of New Orleans, it was postponed, and will now be held in conjunction with the annual meeting of the State Medical Association.

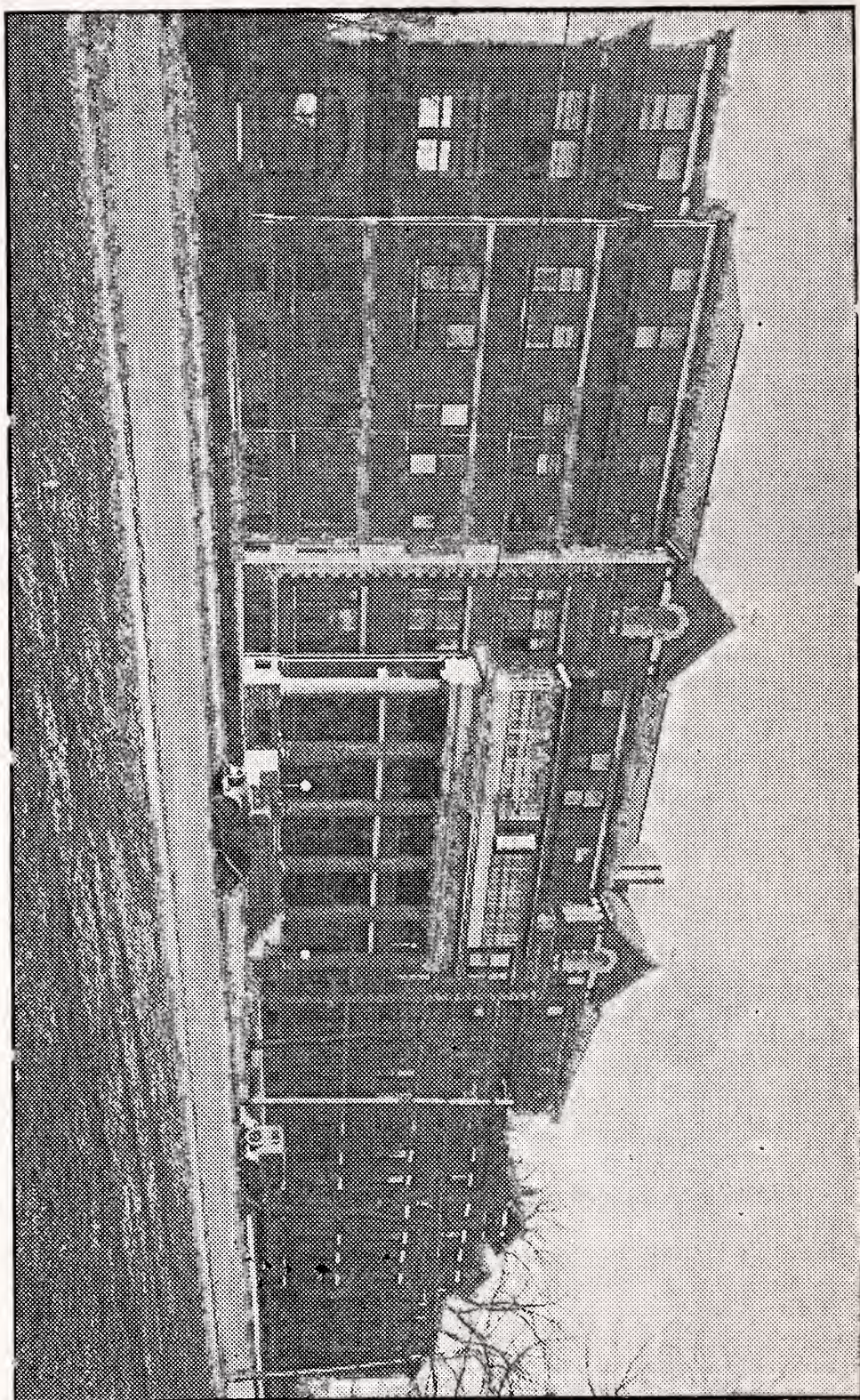
The officers of this section are as follows:

W. P. Drake, M. D., President  
W. N. Offutt, M. D., Vice-President  
S. B. Marks, M. D., Treasurer  
H. D. Abell, M. D., Secretary.

The councilors are as follows:

W. P. Drake, Bowling Green,  
Gaylord C. Hall, Louisville,  
J. D. Williams, Ashland,  
W. N. Offutt, Lexington,  
S. B. Marks, Lexington,  
H. D. Abell, Paducah.





St. Joseph's Hospital, Lexington



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Adjacent to Hotel*



## LEXINGTON HOTELS

The Lafayette and Phoenix Hotels issue a cordial invitation to the members who are not going to stay at the University, to use these hotels as their headquarters. The rooms are spacious and airy, and all are equipped with electric fans, at a very moderate price, from \$2.50 per day, up, according to the location and size. Both hotels are located in the heart of the city and have convenient garage facilities. Those who desire reservations can write to the management of these hotels.



Phoenix Hotel, Lexington



Frank L. McVey, B A., Ph. D., L. L. D.,  
President, University of Kentucky



Julius Marks Sanatorium  
Main Building



## COMMENTS ON "A STUDY OF THE MEDICAL SERVICE IN KENTUCKY"

Sometime in February I received a letter from Dr. McCormack stating he had mailed a paper to me entitled, "A Study of the Medical Service in Kentucky," and requesting me to make comments upon the paper.

I find this to be a very comprehensive study of the subject and a very careful exposition and analysis of the subject. It is a master theory, as these learned authors see it, but they shoot too high and fail to hit the spot.

They know about as much about the conditions in the country as General Braddock knew about fighting Indians. Braddock was a polished and learned General and knew all about fighting in Europe, but he was very ignorant about fighting Indians and knew nothing about the wilds of America.

General Washington undertook to give him some very important and essential advice, but Braddock spurned the advice and scoffed at the young General, saying that it was a pretty pass that a young buckskin should try to teach a British General how to fight.

The result was that Braddock fell on the battlefield and went down in shame and dishonor, many of his men were slain, his army was routed, and Washington had to save the army from total destruction.

So it is with the Medical Association, the colleges and the city doctors. They are bringing upon the country people suffering, destruction and sorrow because of a standard of medical education that is prohibitive, monopolistic and tyrannical in the extreme. Why is it that all the country doctors are fast disappearing? Because under the present plan of educating doctors country boys can't get up ten thousand dollars and spend half of their lives preparing to practice medicine.

The way it is now the young men in the cities and large towns will be all that will study medicine and we will have no doctors in the country. They will have hospitals galore in the cities and large towns, and the country people will have to be hauled twenty-five to fifty miles to the hospitals for every ailment from cholera morbus to typhoid fever and be treated by a lot of city dudes that don't know anything of the family history and constitution of their patients.

The city people don't know what the country people need and are not suited to adopt a plan for educating the whole people in the country as well as in the cities.

What we want is a law for the medical student to be a graduate of high school, four years thorough training in a medical college, and one year interne in a good hospital,

then a diploma as M. D. to practice in general medicine for at least five years. Then if he wants to take up a specialty let him go to college two years and then take a special course in his specialty. Make general practitioners of all medical students first and they will be prepared for a special intensive course. General practice is the foundation of the whole fabric and no one should be allowed to be called a specialist until he practices at least five years in general practice, and ten years would be better.

When you build a two-story house, be sure the lower story, the foundation, is sound and strong.

By this plan we can have plenty of general practitioners in the country and they can take care of ninety per cent of all diseases, and we will not need a specialist in only ten per cent, and we can call him when we need him; and the general practitioner can diagnose and treat ninety per cent of all the cases in the world with nominal cost and not so many costly instruments to make his diagnosis as the specialist has to have.

Some say the country boys will not study medicine and stay in the country. That is a great mistake and very absurd. We had no trouble getting plenty country boys to study medicine until the law prohibited them from studying. I know several young men—bright young men—who wanted to study medicine but could not because the medical practice law made it impossible for them to make doctors.

Abraham Lincoln, who had no superior and very few equals, could never have been a lawyer and a statesman if there had been a cruel and prohibitive law then in the practice of law as we have now in the medical profession.

A great many of the best doctors in the world today would never have been doctors if our present monopolistic law had been in force when they were young men.

Under the present law all the medical students will be in the cities and large towns and will be sons and daughters of the rich, and, of course, being raised in cities and large towns, will naturally locate in cities and large towns, and the most of them under the present law will go into specialties as soon as they get their diplomas. And the cities will be filled with specialists and the country will have no doctors at all, and general practitioners will be scarce even in the cities, and if you have typhoid fever or any continued disease, you will have to have half a dozen specialists to treat your case, when, if you could get a general practitioner to treat your case, he could treat all your conditions better than all this half dozen specialists. Such a plan as is being introduced now will produce pandemonium both in the



cities and large towns and in the country.

On page 29 of this paper, "Medical Service in Kentucky," we quote the following.

"The city has been claiming more than its share of recruits, the country less. Some parity between the two is urgently needed. Highly skilled specialists must serve more than any one community; it is quite necessary that they should locate in centers of population where they are accessible to the largest number of people. But such specialists should handle only the most difficult cases, presumably those referred to them by the general practitioners. In regard to the latter there should be a wide degree of decentralization. They should be reasonably accessible to all the sick and injured wherever they may be found. A good general practitioner, it has been estimated, should be competent to care adequately for ninety per cent of the people who call on him for medical service. These people can be more efficiently and economically served in their local communities. It is not at all desirable that they should be required through necessity to go to some urban center for treatment."

This tells the whole truth. It is certainly better for the country people to be treated in their homes for most all ailments. This article tells exactly what is needed in the country but fails to tell how it can be done. What we need and what the country wants is plenty of good general practitioners in the country and small towns in easy reach at all times for all the general diseases, and the specialist will not be needed in more than ten per cent.

The only way to accomplish this great necessity is to modify the practice law so that boys and girls of moderate means can get a medical education.

A diploma from the high school, then four years' arduous study and training in a good medical college and one year's training in a good hospital with the degree of M. D. and the right to practice general medicine five to ten years before preparing for a specialty. Then if he desires to be a specialist let him take all the study and thorough training needed for that purpose. But make competent general practitioners of all doctors first before they are allowed to prepare for a specialty.

In this way the young people of the country will be able to make doctors and practice in the country where they have been raised and dearly love to live. And this scheme would give plenty of better skilled specialists for the cities after first being general practitioners for a number of years.

In this way I believe the country people can be saved from the terrible calamity that is upon many counties and will be greater if there is no modification in the present

monopolistic and prohibitive medical practice law.

Give us plenty of good general practitioners in the country by giving the country people of moderate means a chance to study medicine and we will have a happy and contented country people, and all this distress, suffering and death caused by want of proper medical attention will be banished.

The country boys and girls are the ones that will practice in the country and save the people if they have a chance.

W. G. KINSOLVING, M. D.

### SCIENTIFIC ELITORIAL

#### PIONEER MEDICAL MEN OF LEXINGTON

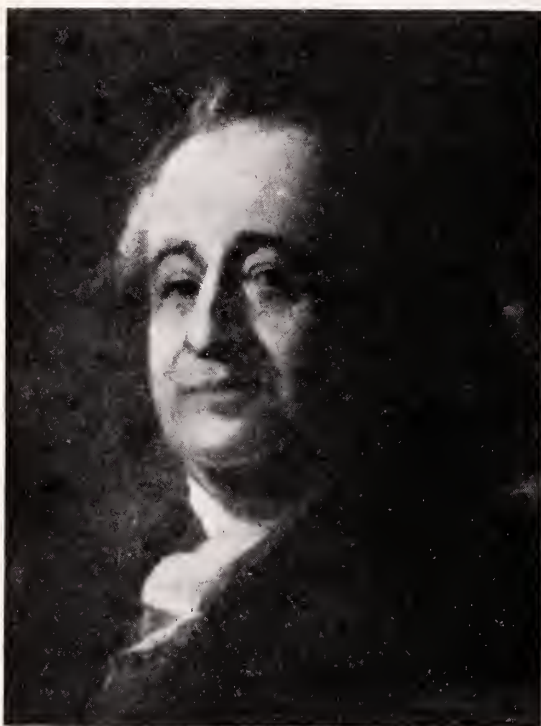
A. H. BARKLEY, A. B., M. D.

Lexington.

Perhaps no single factor contributed as much to place Lexington before the world as the fame, skill, and scientific acumen of its early medical men who resided in or near this city. The practice of medicine today is not what it was in the early pioneer days, many were the obstacles and inconveniences encountered by those hardy and worthy sons of Aesculapius. They sprang from the purest Anglo-Saxon blood. Their forebearers followed the wilderness road blazed by Daniel Boone, either on horseback or on foot, as no wheel had broken it or been broken by it. They were a clear eyed, bold and adventurous people. They wrested the land from the natives, made it secure by their arms, and by the toil of their hands fitted it for its present civilization. It was in such an atmosphere that these heroes in the ruddy exploits of surgery and medicine were reared, and it was from such ancestors they drew the dauntless courage which was so often put to the test in their achievements, the fame of which will never be effaced by the fingers of time.

When the early pioneer medical men left their homes on their daily round there was no assurance of their safe return, so hazardous were their surroundings, so frequent were deaths by the rifle or tomahawk, so common were the scenes of devastation and massacre, of both physician and layman alike, that the tranquil disembodiment of the spirit from disease was a curious and interesting spectacle. An old woman who lived in the block-house in Lexington said that the most comely sight she beheld was a young man dying in his bed a natural death. These were the surroundings under which the early doctors in Lexington practiced their profession.

The history of medicine and early medical men in Kentucky naturally clusters around



Doctor Samuel Brown

Lexington, for it was here the first Medical School west of the Alleghenies, and second on this continent was established—Transylva-



Doctor Charles Caldwell

nia Medical School. Early in 1799 Transylvania University formed a medical school with Dr. Samuel Brown as Professor of chemistry, anatomy and surgery. He came to Lexington from Washington City, then a mere village, where he had practiced a short while. He was well educated, having studied and traveled extensively abroad, a member of the American Philosophical Society, many of whose members he constantly corresponded with.

Brown was the inventor of a method for cleansing Ginseng which not only enhanced its value, but enormously increased its sale in China. He suggested and partially succeeded in forming a national medical society much along the line of the American Medical Association.

Dr. Frederick Ridgley was professor of materia medica, midwifery, and practice of medicine. These men held their position at this time probably as sinecures until 1806, when a complete reorganization took place which put the medical school of Transylvania on a sound basis and from this time on it went forward. Its faculty at this time was composed of such men as Brown, Ridgley and Caldwell.

The first degree conferred by the medical school was on John Lawson McCullough, of Lexington, Ky.

In 1819 President Holley of Transylvania University caused the medical faculty to be



Doctor John Esten Cooke

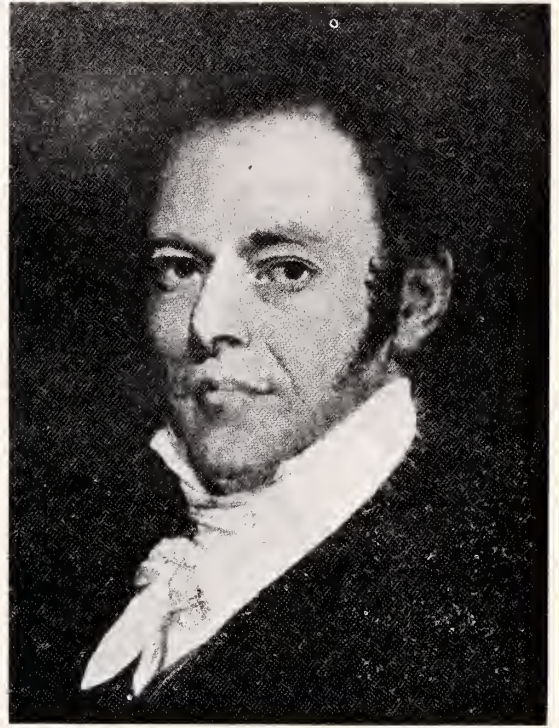


enlarged, besides those above mentioned, such men as Daniel Drake, John Estin Cook, Wm. H. Richardson, Constantine Samuel Rafinesque, John Eberlee, Charles Wilkins Short, Elisha Bartlett, James Conquest Cross, Benjamin W. Dudley, Robert Peter, James M. Bush, and others were added at subsequent dates.

Dr. Dudley was elected Dean and lectured on anatomy and surgery. In 1844 he resigned the chair of anatomy retaining that of surgery until 1850. Dudley was famous not only in this country but abroad as a Lithotomist and much of Transylvania medical glory was due to this man. He was made Professor Emeritus in 1850. During his connection with Transylvania medical school he lectured to six thousand four hundred and fifty-six students. Of this number one thousand eight hundred and eighty-one graduated to go forth to practice the art of healing.

An unpleasant occurrence took place in 1818 between Dudley and Richardson in which Dudley shot Richardson, the latter was attended by Dudley and recovered, both buried their grievance and remained friends the rest of their lives.

Dr. Charles Caldwell came from Philadelphia to occupy the chair of clinical medicine and clinical practice. He was a brilliant teacher, speaker, and writer. He was imbued with the idea that Phrenology should be made a branch of medicine, he gave



Doctor Benjamin W. Dudley

regular lectures both to the students and laity, but like many men with a massive intellect he could not concede to others their dues, as was evinced by his unwarranted attack on Dr. L. P. Yandell.

Daniel Drake occupied the chair of materia medica and medical botany, was brilliant as a teacher and much in demand as a lecturer on social and scientific subjects.

John Estin Cook occupied the chair of Theory and Practice until 1837 when he removed to Louisville, Ky. He wrote a treatise on Pathology and Therapeutics which enjoyed a wide reputation, he was also known as the "Grand High Priest" of calomel, this reputation he gained during the cholera epidemic in Lexington in 1833, when he administered without fear one pound of the drug to a patient in twenty-four hours followed, it is said by recovery.

Constantine Samuel Rafinesque occupied the chair of Natural History and Medical Botany in 1819. He was a most laborious worker and voluminous writer. He severed his connection with the medical school after a misunderstanding with President Holley, returning to Philadelphia where he taught languages until his health failed, later dying in an obscure garret. His body was about to be sold to a medical school in that city, when some friends heard of it and forcibly removing the body through an upper window, gave it a decent burial. After searching the cemeteries of Philadelphia some years later,



Doctor Constantine Samuel Rafinesque





Doctor William H. Richardson

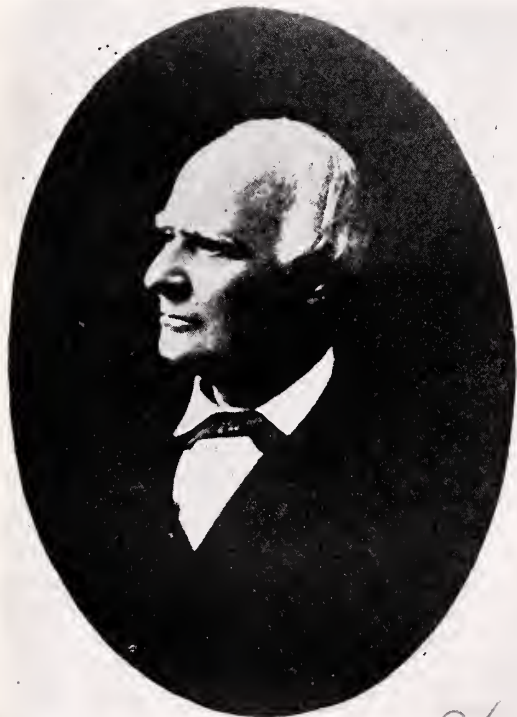
his remains were found and brought to Lexington, where they were deposited in a vault in Transylvania College. Thus, as David Starr Jordan said,

"It is no longer true that we know not even the place where he rests after his long journey."

Rafinesque was one of the most brilliant men of his time. Endowed with natural gifts far above the average, his intellectual powers were strengthened by the training and discipline of hard study. His study and application to the sciences had no bounds, and showed no abatement as years went on. The torch lighted in his youth or student days burned with a steady flame, dimmed only when his powers failed under the sapping of that mysterious and relentless thing—malignancy.

Dr. Robert Peter was professor of Chemistry in 1833, and in 1838 he was made professor of Pharmacy also. He lectured on these subjects and did much research work on the composition of soil. He was considered throughout this country an authority on chemistry.

Dr. James M. Bush was demonstrator of anatomy, later adjunct professor of anatomy and surgery in 1837. In 1844 he was made professor of anatomy, which position he held until the dissolution of the medical school in 1857. He was a partner of Dr. B. W. Dudley. They both enjoyed a wide reputation as surgeons throughout this country. After the medical college burned in 1863 Bush purchased the ground on which it stood and erected a handsome home now standing at

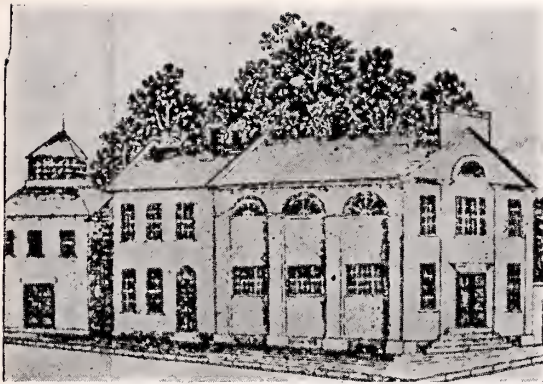


Doctor Robert Peter



Doctor James M. Bush





First Medical Building, erected in 1827  
Located on site of present Y. W. C. A.

the corner of Broadway and Second Streets.

Much more could be said about these men who did so much for Transylvania Medical School, but time and space forbids, however, a few words about the buildings wherein these men labored. When the school first started, the students would go to the various doctor's offices where they would be lectured to, no building being erected at that early date. Later in 1815, about fifteen or twenty students called upon Dr. Dudley, who had just returned from Europe, and requested him to give lectures and demonstrations on anatomy. This he did in a room over Trotter's Warehouse, located then on West Main near Mill Street.

In 1827 the first medical building was erected on the corner of Market and Church Streets, the site of present Y. W. C. A. Later an anatomical theater, though some accounts say it was an operating pavilion was erected in the rear of this building. This was used for anatomical demonstrations, the main or front building now standing, used for lectures and etc., this was occupied until the medical school erected a larger and handsomer building in 1840 at the corner of Broadway and Second Streets, this was used by the medical school until its close. In this building many interesting specimens were kept and when the building burned in 1863 it was only through the heroic efforts of the citizens that some were saved and may now be seen in the museum at Transylvania College.

The facilities for caring for the sick in those days were meager in the extreme. Those who were fortunate to have homes, remained in them, and those brought from a distance, were put in taverns or private homes in the town. Later on when Dudley and Bush were at the height of their career, there not being a hospital they would engage a Mrs. Beatty, an old lady who lived at the corner of Walnut and Third Streets to care for patients upon whom they expected to operate.

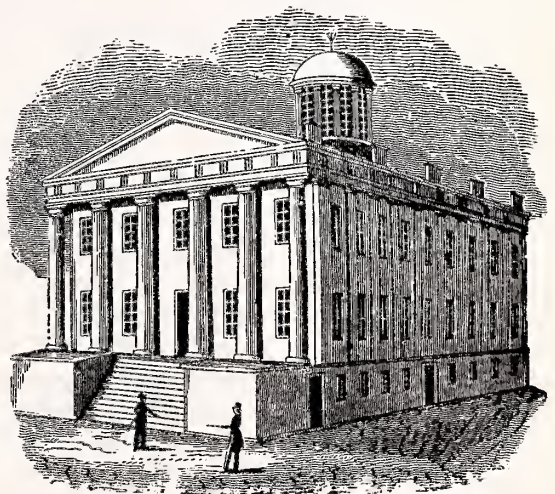
After they were operated upon in the medical building at Second and Broadway, they were removed on a shuck mattress to Mrs. Beatty's where she would give them post-operative care under the directions of the physicians in charge. This may properly be called the first hospital in Lexington.

At the first meeting of the trustees of Transylvania University in 1799, Dr. Samuel Brown was authorized to purchase books for the use of the medical professors to the amount of five hundred dollars, which sum was no small amount in those days. These books were purchased in Europe by Brown and brought to this country and formed the nucleus of the present Transylvania Medical Library.

Again in 1820 Dr. Chas. Caldwell was commissioned to buy books for the library. These books were also obtained in Europe, and brought later to Transylvania, where they now occupy a conspicuous place on the shelves of the library.

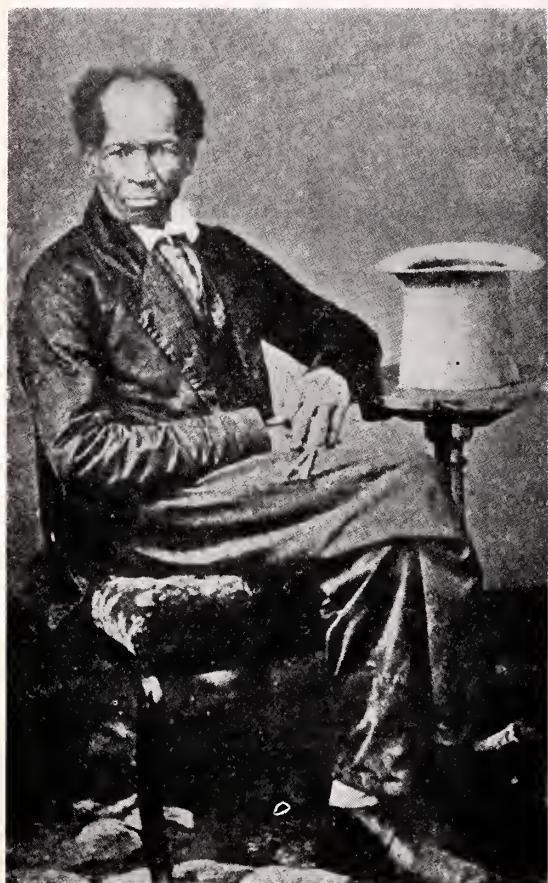
Caldwell visited the Legislature in 1820 and induced them to donate five thousand dollars, (\$5000), for books for the library. The city of Lexington donated six thousand for the same purpose, and through other donations which he was able to obtain, he took with him to Europe thirteen thousand dollars, (\$13,000). Caldwell was a man of refined taste and of excellent learning, and no one could have been selected to execute the order better than he, as was evidenced by the fact that while in Europe on this mission, he procured some of the most valuable books to be had at that time.

In 1839 we find Transylvania Medical College spending more money for books to add to its already large collection. Dr. James



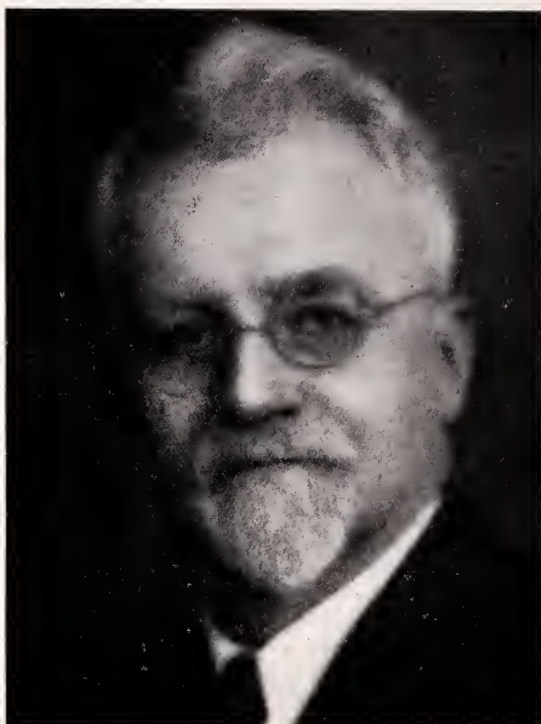
Transylvania University—Medical Hall  
Built in 1839—Burned in 1863





Absolom Driver  
Keeper of the Dissecting Room

M. Bush and Dr. Robert Peter spent most of the summer in London and Paris purchasing books. They were authorized to spend Eleven thousand dollars, (\$11,000), for books, which collection is now looked upon as containing some of the rarest and most valuable books to be found anywhere on either continent. Transylvania continued to spend money for books until it acquired a collection of eight thousand, (8000), medical volumes, which is intact and abounds in rare material. The books are in good condition, paper of good quality, type clear and the binding and plates bear the mark of expert workmanship. The dates of publication range from the 14th Century on down to more recent times. They are now located in a building on the campus of Transylvania College and under the supervision of that most accomplished scholar and librarian, Mrs. Charles F. Norton, who always exhibits the greatest pleasure in showing visitors through the library.



T. J. Ray, M. D., Lexington  
President  
Fayette County Medical Society



Elmer S. Maxwell, M. D., Lexington  
Secretary-Treasurer  
Fayette County Medical Society





#### MORRISON COLLEGE, TRANSYLVANIA

Morrison College, the crowning glory of the Transylvania Campus, the pride and the inspiration of every Transylvanian, is a worthy monument to three illustrious men: James Morrison, Henry Clay, and Gideon Shryock. Morrison made the bequest for the building, Clay suggested that the bequest be made, and Shryock was the architect who drew the plans and superintended the erection. The plans were approved October 30, 1830. The contract for the erection was signed June 30, 1831. Owing to delays caused by changes in the location and in the plans, and by an epidemic of cholera in Lexington, Morrison College was not fully completed until 1834 at a cost of about \$30,000.

If this old building could be transformed to the slopes of ancient Greece, so true are its lines, it would not suffer in comparison with those classic ruins which are still the models of the world.

## OFFICERS OF THE KENTUCKY STATE MEDICAL ASSOCIATION



W. B. McClure, M. D., Lexington  
President



W. Barnett Owen, M. D., Louisville  
Vice-President



J. L. Atkinson, M. D., Campbellsville  
Vice-President



C. C. Turner, M. D., Glasgow  
Vice-President



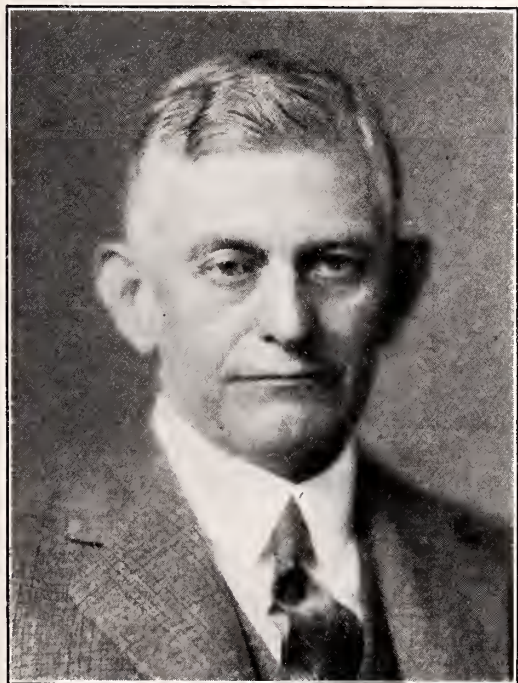
OFFICERS OF THE KENTUCKY STATE MEDICAL ASSOCIATION



Marshall McDowell, M. D., Cynthiana  
Treasurer



A. T. McCormack, M. D., Louisville  
Secretary, Editor  
Delegate American Medical Association.

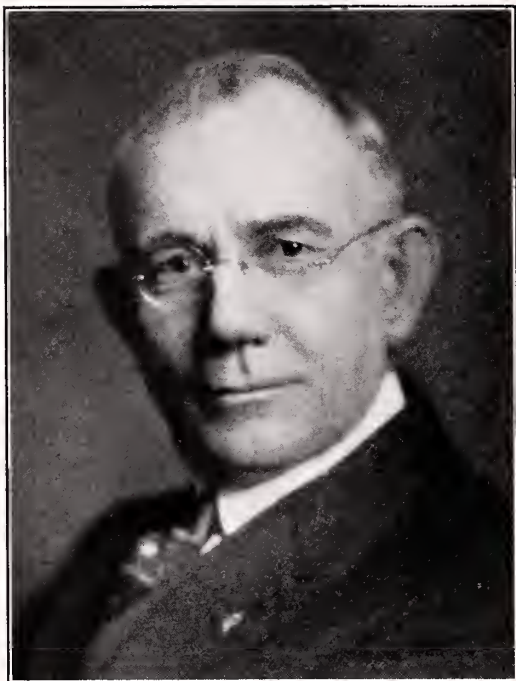


G. A. Hendon, M. D., Louisville, Delegate  
American Medical Association



Irvin Abell, M. D., Louisville, Delegate  
American Medical Association

## COUNCILORS



V. A. Stilley, M. D., Benton  
First District



D. M. Griffith, M. D., Owensboro  
Second District



C. C. Howard, M. D., Glasgow  
Third District



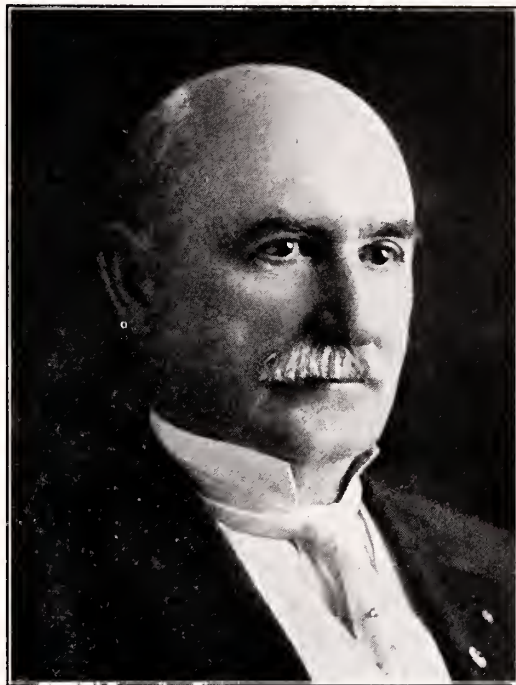
J. I. Greenwell, M. D., New Haven  
Fourth District



COUNCILORS



W. E. Gardner, M. D., Louisville  
Fifth District



R. C. McChord, M. D., Lebanon  
Sixth District, Chairman of Council

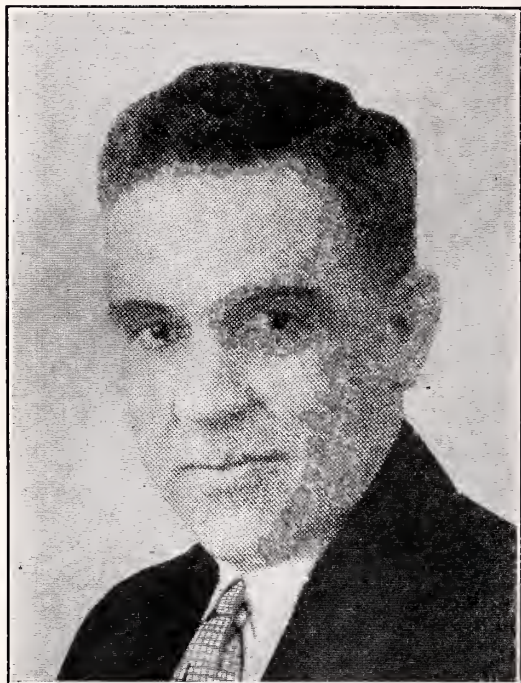


V. G. Kinnaird, M. D., Lancaster  
Seventh District



C. W. Shaw, M. D., Alexandria  
Eighth District

## COUNCILORS



S. C. Smith, M. D., Ashland  
Ninth District



C. A. Vance, M. D., Lexington  
Tenth District



W. M. Martin, M. D., Harlan  
Eleventh District



L. H. South, M. D., Louisville  
Business Editor



OFFICERS OF THE KENTUCKY STATE MEDICAL ASSOCIATION



C. N. Kavanaugh, M. D., Lexington  
Chairman Program Committee



B. S. Rutherford, M. D., Bowling Green  
Orator in Medicine

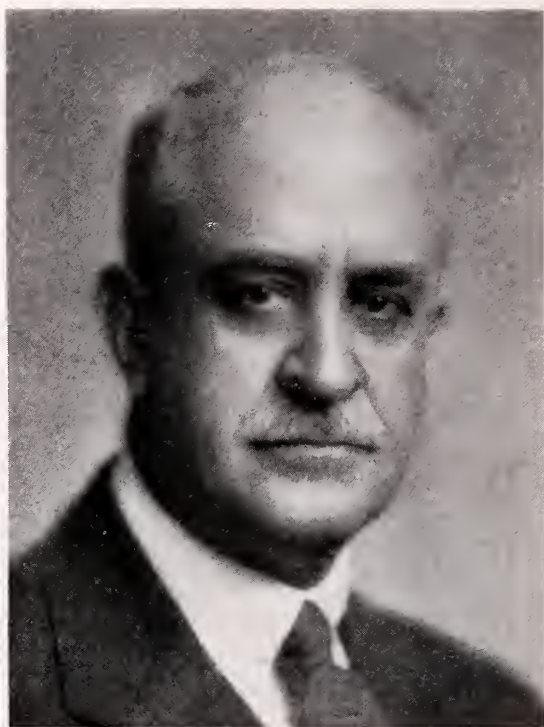


J. S. Chambers, M. D., Lexington  
Head of Dept. Hygiene and Public Health  
Director of Dispensary, University Kentucky  
Chair of Committee on Dormitories  
and University Placements

## OFFICERS OF THE EYE, EAR, NOSE AND THROAT SECTION



W. P. Drake, M. D., Bowling Green  
President



W. N. Offutt, M. D., Lexington  
Vice-President



S. B. Marks, M. D., Lexington  
Orator in Surgery  
Treasurer Eye, Ear, Nose and Throat Section





*James T. Beddick*

PRESIDENT KENTUCKY STATE MEDICAL ASSOCIATION, 1931







Dr. L. C. Redmon, Lexington  
Chairman on Arrangement

## OFFICIAL ANNOUNCEMENTS

PRELIMINARY PROGRAM KENTUCKY STATE  
MEDICAL ASSOCIATION, SEPTEMBER  
7-10, 1931

SEPTEMBER 8TH—TUESDAY A. M.

9 A. M. - 1 P. M.

Call to Order by the President, W. B. McClure, M. D., Lexington.

Invocation. Rev. A. W. Fortune.

Address of Welcome. Dr. F. L. McVey. C. C. Garr, M. D.

Response to Address of Welcome.

Installation of President.

Report of Committee on Arrangements.

FOUR CASE REPORTS: (8 minutes each)

1. "An Unusual Fecal Fistula." Arvid O. Taylor, M. D., Maysville.

2. Wm. Brown, M. D., Lexington.

3. "Sub-Diaphragmatic Abscess Imitating Ruptured Peptic Ulcer."—By Edwin F. Shepherd, M. D., Jenkins.

GASTRO-INTESTINAL AND BILIARY TRACT SYMPOSIUM: (15 minutes each)

1. "The Clinical and Surgical Aspects of Disease of the Biliary Tract." Frances Massie, M. D., Lexington.

2. "The Clinical and Surgical Aspects of Diseases of the Duodenum." Malcolm D. Thompson, M. D., Louisville.

3. "The Clinical and Surgical Aspects of Diseases of the Stomach." Robret P. Ball, D., Harlan.

TUESDAY 12 M.—SPECIAL ORDER

Oration in Surgery

"Septic Meningitis of Otitic Origin."—Sam Marks, M. D., Lexington.

TUESDAY P. M.—SEPTEMBER 8TH; 2 P. M.  
(15 minutes each)

1. "The Injection Treatment of Hemorrhoids." Wm. H. Mason, M. D., Murray.

2. "Toxic Goiter, Early Symptoms, Diagnosis and Treatment."

3. "So-Called Modern Urinary Antiseptics."—Claude G. Hoffman, M. D., Louisville.

4. "Syndromes of Chronic Epidemic Encephalitis." John J. Moran, M. D., Louisville.

5. "Diabetes Coma." John W. Armstrong, M. D., Berea.

WEDNESDAY A. M.—SEPTEMBER 9TH

9 A. M. - 1 P. M.

Nine Case Reports: (8 minutes each)

1.

2. "The Treatment of Congenital Syphilis with Bismuth Arsphenamine Sulphate—Case Report Brain Gumma treated with above." Thomas Marks, M. D., Lexington, ton.

3. "Acute Coronary Occlusion." Emmet F. Horine, M. D., Louisville.

4. "Bladder Tumor." Henry J. Farbach, M. D., Louisville.

5. By Walter S. Wyatt, M. D., Lexington.

6. "Chronic Arthritis Deformans: Treatment by Sympathetic Ganglionectomy." R. Glen Spurling, M. D., Louisville.

7.—

8. John D. Trawick, M. D., Louisville.

9. J. D. Northcutt, M. D., Covington.

SYMPOSIUM ON DISEASES OF THE KIDNEY  
(15 minutes each)

1. "Diagnosis and Treatment of Neoplasms of the Kidney." James R. Stites, Louisville.

2. "Nephritis, Pathologic Types." Elmer S. Maxwell, M. D., Lexington.

3. "Nephritis, Clinical Types." C. W. Dowden, M. D., Louisville.

4. "Intravenous Pyelography." Edward H. Ray, M. D., Lexington.

WEDNESDAY M.—SPECIAL ORDER

Oration in Medicine

"Life Extension." B. S. Rutherford, M. D., Bowling Green.

SEPTEMBER 9TH—WEDNESDAY P. M.; 2 P. M.  
(15 minutes each)

1. "Recent Advances in Pre-anesthetic Medication." Harper E. Richey, M. D., Louisville.

2. "Ocular Manifestations of Systemic Disease."—By Leo L. Jacobs, M. D., Covington.

3. "Etiology in the Diagnosis of Heart Disease." O. P. Nuckols, Pineville.

4. "Certain Problems in the Treatment of Fractures." Milton D. Flanary, M. D., Pikeville.

5. "The Proper Use and Selection of Diuretics." Garland L. Dyer, M. D., Buechel.

6. "Pre and Post-Operative Treatment in Abdominal Surgery." Irvin Abell, M. D., Louisville.

SEPTEMBER 9TH—WEDNESDAY, 8 P. M.

Public Address

By E. Starr Judd, M. D., Rochester, Minn.  
President American Medical Association.

SEPTEMBER 10TH—THURSDAY A. M.; 9 A. M.

Symposium On Empyema

(15 minutes each)

1. "Difficulties in the Diagnosis of Empyema." Wm. A. Graham, M. D., Flemingsburg.

2. "Roentgen Diagnosis of Empyema." By Vernon Blythe, M. D., Paducah.

3. "Surgical Treatment of Empyema."—C. C. Howard, M. D., Glasgow.

(15 minutes each)

1. "Clinical and Surgical Aspects of Acute Intestinal Obstruction." John H. Blackburn, M. D., Bowling Green.

2. "The Diagnosis and Treatment of Latent Syphilis." C. Brooks Willmott,



M. D., Louisville.

3. "The Diagnostic Value of Encephalography and Ventriculography." B. F. Zimmerman, M. D., Louisville.

4. "The Secondary Anemias in Children." James W. Bruce, M. D., Louisville.

5. "Reasons for Urging Thyroidectomy." J. Farra Van Meter, M. D., Lexington.

SEPTEMBER 10TH—THURSDAY P. M.; 2 P. M.  
(15 minutes each)

1. "Contraception: Review of Methods and Indications." Scott D. Breckinridge, M. D., Lexington.

2. "Post-partum Care." Alice N. Pickett, M. D., Louisville.

3. "Accidents of Labor."

4. "Secondary Anemia of Pregnancy." Henry V. Johnson, M. D., Georgetown.

5. "Eclampsia, A Preventable Disease." Edward Speidel, M. D., Louisville.

# ELEVENTH ANNUAL MEETING EYE, EAR, NOSE THROAT SECTION OF THE KENTUCKY STATE MEDICAL ASSOCIATION McVEY HALL Lexington, Kentucky

MONDAY MORNING SESSION—SEPTEMBER 7  
all to Order 10:30 A. M.

Invocation. Rev. R. H. Daugherty.

Business Session.

President's Address, Malignancy Upper Respiratory Tract. W. P. Drake, M. D., Bowling Green.

Memorial Service for J. A. Stucky, M. D., Lexington and R. C. Lynch, M. D., New Orleans, La. By S. B. Marks, M. D., Lexington.

## THE SCIENTIFIC PROGRAM

### I. Case Reports

a. A Case For Diagnosis. Chas K. Beck, M. D., Louisville.

General Discussion.

b. Sinus Thrombosis.

Osteomyelitis Complicating the Sinuses. A. L. Bass, M. D., Louisville.

Discussions by H. G. Reynolds, M. D., Paducah and Dan Griffith, M. D., Owensboro.

II. Cross Cylinders and Demonstrations of Their Uses. R. H. Cowley, M. D., Berea.

Discussion by Milton J. Stern, M. D., Lexington.

III. Some Points in the Management of Heterophoria. C. D. Townes, M. D., Louisville.

Discussions by Carleton Thomas, M. D., Lexington.

IV. Acute Mastoiditis: When to Advise Treatment. L. P. Malloy, Paducah. Discussions by C. T. Wolfe, M. D., Louis-

ville and J. D. Williams, M. D., Ashland.

AFTERNOON SESSION—2:00 P. M.

Unfinished Business.

V. Hay Fever. E. V. Edwards, M. D., Mayfield.

Discussion by Octavus Dulaney, M. D., Louisville.

VI. Lung Abscesses. Wallace Frank, M. D., Louisville.

Discussions by G. C. Hall, M. D., Louisville and S. S. Watkins, M. D., Louisville.

VII. Round Table Discussion.

## OFFICIAL CALL

THE EIGHTY-FIRST ANNUAL MEETING OF THE  
KENTUCKY STATE MEDICAL ASSOCIATION  
TO BE HELD AT THE UNIVERSITY OF  
KENTUCKY, LEXINGTON

To the Officers and Members of the Component County Societies of the Kentucky State Medical Association:

The Eighty-first Annual Meeting of the Kentucky State Medical Association will convene in the Memorial Hall of the University of Kentucky, Monday, Tuesday, Wednesday and Thursday, September 7, 8, 9, 10, 1931.

### THE HOUSE OF DELEGATES

The House of Delegates of the Kentucky State Medical Association will convene in the Decker Hall, at 2 p. m., on Monday, September 7.

### FIRST GENERAL SESSION

The First General Session which constitutes the opening exercises of the scientific function of the Association will be held in Memorial Hall, Tuesday, September 8, at 9 a. m.

### THE COUNCIL

The Council will convene in the Decker Hall, Monday, September 7, at 10:30 a. m.

### THE REGISTRATION DEPARTMENT

The Registration Department will be open in the Lobby of the Memorial Hall, from 10 a. m. to 5 p. m., on Monday, September 7; from 8 a. m. to 5 p. m., on Tuesday and Wednesday, September 8 and 9; and from 8 a. m. to 12 m., on Thursday, September 10.

### COUNCILOR DISTRICTS

#### FIRST DISTRICT

V. A. Stille, Benton, Councilor  
Livingston Crittenden  
McCracken Fulton  
Marshall Graves  
Trigg Lyon

#### SECOND DISTRICT

D. M. Griffith, Owensboro, Councilor  
Hopkins Ohio  
McLean Union  
Muhlenberg Webster

#### THIRD DISTRICT

C. C. Howard, Glasgow, Councilor  
Cumberland Simpson  
Logan Todd  
Monroe Warren-Edmonson  
Metcalfe

#### FOURTH DISTRICT

J. I. Greenwell, New Haven, Councilor  
Breckinridge Hardin Meade  
Bullitt Hart Nelson  
Grayson Lattie Spencer

#### FIFTH DISTRICT

W. E. Gardner, Louisville, Councilor  
Carroll Gallatin Shelby  
Oldham Henry Trimble  
Franklin Jefferson Owen

SIXTH DISTRICT		
R. C. McChord, Lebanon, Councilor	Green	Taylor
Adair	Marion	Washington
Anderson	Mercer	
Boyle		
SEVENTH DISTRICT		
V. G. Kinnaird, Lancaster, Councilor	Lincoln	Rockcastle
Casey	McCreary	Russell
Clinton	Pulaski	Wayne
Garrard		
EIGHTH DISTRICT		
C. W. Shaw, Alexandria, Councilor	Fleming	Mason
Boone	Grant	Nicholas
Bracken	Harrison	Pendleton
Campbell-Kenton		Robertson
NINTH DISTRICT		
S. C. Smith, Ashland, Councilor	Greenup	Martin
Boyd	Johnson	Magoffin
Carter	Lewis	Pike
Elliott	Lawrence	
Floyd		
TENTH DISTRICT		
C. A. Vance, Lexington, Councilor	Lee	Rowan
Bath	Madison	Scott
Bourbon	Menifee	Wolfe
Breathitt	Montgomery	Estill
Clark	Powell	Woodford
Fayette	Morgan	
Jessamine		
ELEVENTH DISTRICT		
W. M. Martin, Harlan, Councilor	Knott	Leslie
Bell	Knox	Owsley
Clay	Laurel	Ferry
Harlan	Letcher	Whitley
Jackson		

## CONSTITUTION AND BY-LAWS OF THE KENTUCKY STATE MEDICAL ASSOCIATION ADOPTED AT PADUCAH IN 1902 AS AMENDED

### CONSTITUTION

#### ARTICLE I.—NAME OF THE ASSOCIATION

The name and title of this organization shall be the Kentucky State Medical Association.

#### ARTICLE II.—PURPOSE OF THE ASSOCIATION

The purpose of the Association shall be to federate and bring into compact organization the entire medical profession of the State of Kentucky, and to unite with similar associations in other states to form the American Medical Association, with a view to the extension of medical knowledge, and to the advancement of medical science to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interest and to the enlightenment and direction of public opinion in regard to the great problem of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

#### ARTICLE III.—COMPONENT SOCIETIES

Component Societies shall consist of those county medical societies which hold charters from this Association.

#### ARTICLE IV.—COMPOSITION OF THE ASSOCIATION

Section 1. This Association shall consist of Members, Delegates and Guests.

Sec. 2.—MEMBERS: The members of this

Association shall be the members of the component county medical societies.

Sec. 3.—DELEGATES. Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective component county societies in the House of Delegates of this Association.

Sec. 4.—GUESTS. Any distinguished physician not a resident of this State may become a guest during any Annual Session upon invitation of the Association or its Council, and shall be accorded the privileges of participating in all of the scientific work of that session.

### ARTICLE V.—HOUSE OF DELEGATES

The House of Delegates shall be the legislative and business body of the Association, and shall consist of (1) Delegates elected by the component county societies, and (2) *ex-officio*, the officers of the Association as defined in Article VIII, Section 1, of this Constitution.

### ARTICLE VI.—SECTIONS AND DISTRICT SOCIETIES

The House of Delegates may provide for a division of the scientific work of the Association into appropriate Sections, and for the organization of such Councilor District Societies as will promote the best interest of the profession, such societies to be composed exclusively of members of component county societies.

### ARTICLE VII.—SESSIONS AND MEETINGS

Section 1. The Association shall hold an Annual Session, during which there shall be held daily not less than two General Meetings, which shall be open to all registered members, delegates and guests.

Sec. 2. The time and place for holding each annual session shall be fixed by the House of Delegates.

### ARTICLE VIII.—OFFICERS

Section 1. The officers of this Association shall be a President, three Vice-Presidents, a Secretary, a Treasurer, and eleven Councilors.

Sec. 2. The President and Vice-Presidents shall be elected for a term of one year. The Secretary, Treasurer and Councilors shall be elected for terms of five years each, the Councilors being divided into classes so that two shall be elected each year. All of these officers shall serve until their successors are elected and installed.

Sec. 3. The officers of the Association shall be elected by the House of Delegates on the morning of the last day of the Annual Session but no Delegate shall be eligible to any office named in the preceding section, except that of Councilor, and no person shall be elected to any such office who is not in attendance upon the Annual Session, and who



has not been a member of the Association for the past two years.

#### ARTICLE IX.—FUNDS AND EXPENSES

Funds for meeting the expenses of the Association shall be arranged for by the House of Delegates by an equal per capita assessment upon each county society to be fixed by the House of Delegates; by voluntary contribution, and from the profits of its publication. Funds may be appropriated by the House of Delegates to defray the expenses of the Annual Session, for publication and for such other purposes as will promote the welfare of the Association and profession.

#### ARTICLE X.—REFERENDUM

The General Meeting of the Association may, by a two-thirds vote, order a general referendum upon any question pending before the House of Delegates, and the House of Delegates may, by a similar vote of its own members, or after a like vote of the General Meeting, submit any such question to the membership of the Association for a final vote; and if the persons voting shall comprise a majority of all the members, a majority of such vote shall determine the question and be binding upon the House of Delegates.

#### ARTICLE XI.—THE SEAL

The Association shall have a common Seal with power to break, change or renew the same at pleasure.

#### ARTICLE XII.—AMENDMENTS

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates registered at that Annual Session, provided that such amendment shall have been presented in open meeting at the previous Annual Session, and that it shall have been sent officially to each component county society at least two months before the session at which final action is to be taken.

#### BY-LAWS

##### CHAPTER I.—MEMBERSHIP

Section 1. All members of the Component County Societies shall be privileged to attend all meetings and take part in all the proceedings of the Annual Session, and shall be eligible to any office within the gift of the Association. PROVIDED, that no physician may become a member of any county society unless he signs and keeps inviolate the following pledge:

I hereby promise upon my honor as a gentlemen that I will not so long as I am a member of the Kentucky State Medical Association practice division of fees in any form; neither by collecting fees from others referring patients to me nor by permitting them to collect my fees for me; nor will I make joint fees with physicians or surgeons referring patients to me for operation or consultation; neither will I in any way, directly

or indirectly, compensate anyone referring patients to me nor will I utilize any man as an assistant as a subterfuge for this purpose.

Sec. 2. The name of a physician upon the properly certified roster of members, or list of delegates, of a chartered county society which has paid its annual assessment, shall be *prima facie* evidence of his right to register at the Annual Session in the respective bodies of this Association.

Sec. 3. No persons who are under sentence or suspension or expulsion from any component society of this Association, or whose name has been dropped from its roll of membership shall be entitled to any of the rights or benefits of this Association, nor shall he be permitted to take part in any of its proceedings, until such time as he has been relieved of such liability.

Sec. 4. Each member in attendance at the Annual Session shall enter his name on the registration book, indicating the component society of which he is a member. When his right to membership has been verified by receiving a badge which shall be evidence of his reference to the roster of the society, he shall have right to all privileges of membership at that session. No member or delegate shall take part in any of the proceedings of an annual session until he has complied with the provisions of this section.

##### CHAPTER II.—ANNUAL AND SPECIAL SESSION OF THE ASSOCIATION

Section 1. The Association shall hold an annual session, meeting every third year in the city of Louisville, and the other two-years at some point in the State fixed at the preceding annual session.

##### CHAPTER III.—GENERAL MEETING

Section 1. The General Meeting shall include all registered members, delegates and guests, who shall have equal rights to participate in the proceedings and discussions; and except guests, to vote on pending questions. Each General Meeting shall be presided over by the President or in his absence or disability or upon his request, by one of the Vice-Presidents. Before it, at such time and place as may have been arranged, shall be delivered the annual address of the President, and the annual orations and the entire time of the sessions as far as may be, shall be devoted to papers and discussion relating to scientific medicine.

Sec. 2. The General Meeting shall have authority to create committees or commission for scientific investigation of special interest and importance to the profession and public, and to receive and dispose of reports of the same; but any expense in connection therewith must first be approved by the House of Delegates.

Sec. 3. Except by special vote, the order of exercises, papers and discussions as set

forth in the official program shall be followed from day to day until it has been completed.

Sec. 4. No address or paper before the Association, except those of the President and orators shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject.

Sec. 5. All papers read before the Association shall be its property. Each paper shall be deposited with the Secretary when read and if this is not done it shall not be published.

#### CHAPTER IV.—HOUSE OF DELEGATES

Section 1. The House of Delegates shall meet annually at the time and place of the Annual Session of the Association and shall so fix its hours of meeting as not to conflict with the first General Meeting of the Association, or with the meeting held for the address of the President and the annual orations and so as to give delegates an opportunity to attend the other scientific proceedings and discussions so far as is consistent with their duties. But if the business interests of the association and profession require it may meet in advance or remain in session after the final adjournment of the General Meeting.

Sec. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every twenty-five members, and one for each major fraction thereof, but each county society holding a charter from this Association, which has made its annual report and paid its assessments as provided in this Constitution and By-Laws shall be entitled to one delegate. In case the regularly elected delegate or alternate is unable to attend the annual meeting of the Association, the President of the county society may in writing appoint an alternate, who shall have the rights and privileges of a delegate.

Sec. 3. A majority of the registered delegates shall constitute a quorum and all of the meetings of the House of Delegates shall be open to members of the Association.

Sec. 4. It shall, through its officers, Advisory Council, and otherwise, give diligent attention to and foster the scientific work and spirit of the Association, and shall constantly study and strive to make each Annual Session a stepping stone to further ones of higher interest.

Sec. 5. It shall consider and advise as to the material interest of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public health legislation, and to diffuse popular information in relation thereto.

Sec. 6. It shall make careful inquiry into

the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse between physicians of the same locality and shall continue these efforts until every physician in every county of the State who can be made reputable, has been brought under medical society influence.

Sec. 7. It shall encourage post-graduate work in medical centers as well as home study and research and shall endeavor to have the results of the same utilized and intelligently discussed in the county societies. With these ends in view, five years after the adoption of the By-Laws no voluntary paper shall be placed upon the annual program nor be heard in the Association which has not first been heard in the county society of which the author is a member.

Sec. 8. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body in such manner that not more than one-half of the delegates shall be elected in any one year.

Sec. 9. It shall upon application provide and issue charters to county societies organized to conform to the spirit of the Constitution and By-Laws.

Sec. 10. In sparsely settled sections it shall have authority to organize the physicians of two or more counties to be designated by hyphenating the names of two or more counties so as to distinguish them from district and other classes of societies and these societies, when organized and chartered shall be entitled to all the privileges and representation provided herein for county societies, until such counties may be organized separately.

Sec. 11. It may divide the counties of the State into Councilor Districts, and, when the best interests of the Association and profession will be promoted thereby, organize in each district a medical society, to meet midway between the annual session of the Association and members of the chartered county societies and none other shall be members.

When so organized from the presidents of such districts societies shall be chosen the Vice-Presidents of this Association and the Presidents of the county societies of the district shall be the Vice-Presidents of such district societies.

Sec. 12. It shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates, and



such committee may report to the House of Delegates in person, and may participate in the debate thereon.

Sec. 13. It shall approve all memorials and resolutions issued in the name of the Association before the same shall become effective.

Sec. 14. It shall present a summary of its proceedings to the last General Meeting of each Annual Session, and shall publish the same in the Journal.

#### CHAPTER V.—ELECTIONS OF OFFICERS

Section 1. All elections shall be by secret ballot, and a majority of the votes cast shall be necessary to elect, provided, however, that when there are more than two nominees the nominee receiving the least number of votes on the first ballot shall be dropped and the balloting continue until an election occurs in like manner.

Sec. 2. Any member known to have directly or indirectly solicited votes for, or sought any office within the gift of this Association shall be ineligible for any office for two years.

Sec. 3. The election of officers shall be the first order of business of the House of delegates after the reading of the minutes on the morning of the last day of the General Session.

Sec. 4. Nominations for President shall be called for by counties.

#### CHAPTER VI.—DUTIES OF OFFICERS

Section 1. The President shall preside at all meetings of the Association and of the House of Delegates; shall appoint all committees not otherwise provided for; shall deliver annual address at such time as may be arranged; shall give a deciding vote in case of a tie, and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office and so far as practicable, shall visit by appointment, the various sections of the State and assist the Councilors in building up the county societies and in making their work more practical and useful.

Sec. 2. The Vice-President shall assist the President in the discharge of his duties. In the event of his death, resignation or removal the Council shall elect one of the Vice-Presidents to succeed him.

Sec. 3. The Treasurer shall give bond for the trust imposed in him whenever the House of Delegates shall deem it requisite. He shall demand and receive all funds due the association, together with the bequests and donations. He shall, under the direction of the House of Delegates, sell or lease any real estate belonging to the Association and execute the necessary papers, and shall in general subject to such direction, have the care and management of the fiscal affairs of the

Association. He shall pay money out of the Treasury only on written order of the President, countersigned by the Secretary; he shall subject his accounts to such examinations as the House of Delegates may order, and he shall annually render an account of his doings and of the state of funds in his hands.

The council shall be the executive body of the House of Delegates and between sessions shall exercise the powers conferred on the House of Delegates by the constitution and by-laws.

Sec. 4. The Secretary, acting with the Committee on Scientific Work, shall prepare and issue the program for and attend all meetings of the Association and of the House of Delegates and he shall keep minutes of their respective proceedings in separate record books. He shall charge upon his books the assessments against each component county society at the end of the fiscal year; he shall collect and make proper credits for the same, and perform such other duties as may be assigned to him. He shall be custodian of all record books and papers belonging to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates at the Annual Sessions. He shall keep a card index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society and upon request shall transmit a copy of this list to the American Medical Association for publication. In so far as it is in his power he shall use the printed matter, correspondence and influence of his office to aid the Councilors in the organizations and improvement of the county societies and in the extension of the power and usefulness of this Association. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall act as secretary of the Committee on Scientific Work. He shall be editor of the KENTUCKY MEDICAL JOURNAL. He shall employ such assistants as may be ordered by the Council or the House of Delegates. He shall annually make a report of his doings to the House of Delegates.

In order that the Secretary may be enabled to give that amount of time to his duties which will permit of his becoming proficient it is desirable that he shall receive some compensation. The amount of his salary shall be fixed by the House of Delegates.

#### CHAPTER VII.—COUNCIL

Section 1. The Council shall hold daily meetings during the annual session of the Associations and at such other times as necessity

may require, subject to the call of the Chairman or on petition of three Councilors. It shall meet on the last day of the Annual Session of the Association for re-organization and for the outlining of the work for the ensuing year. At this meeting it shall elect a chairman and secretary and it shall keep a permanent record of its proceedings. It shall through its Chairman, make an annual report to the House of Delegates at such time as may be provided, which report shall include an audit of the account of the Secretary and Treasurer and other agents of this Association, and shall also specify the character and cost of all the publications of the Association during the year, and the amounts of all other property belonging to the Association, or under its control, with such suggestions as it may deem necessary. In the event of a vacancy in any office the Council may fill the same until the annual election.

Sec. 2. Each Councilor shall be organizer, peacemaker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his doings, and of the condition of the profession of each county in his district to each Annual Session of the House of Delegates. The necessary traveling expenses incurred by Councilor in the line of his duties herein imposed may be allowed by the House of Delegates upon a proper itemized statement, but this shall not be construed to include his expenses in attending the Annual Session of the Association.

Sec. 3. Collectively the Council shall be the Board of Censors of the Association. It shall consider all questions involving the right and standing of members, whether in relation to other members, to the component societies or to this Association. All questions of an ethical nature brought before the House of Delegates of the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or of a county society upon which appeal is taken from the decision of an individual Councilor. Its decision in all such cases shall be final.

Sec. 4. The Council shall have the right to communicate the views of the profession and of the Association in regard to health, sanitation and other important matters to the public and the lay press. Such communications shall be officially signed by the chairman and secretary of the Council, as such.

Sec. 5. The Council shall provide for and superintend the publication and distribution

of all proceedings, transactions and memoirs of the Association and shall have authority to appoint such assistants to the editors as it deems necessary. It shall manage and conduct the KENTUCKY MEDICAL JOURNAL, which is the organ of the Association, and all money received by the Journal, the Council or any officer of the Association, shall be paid to the Treasurer of the Association on the first of each month.

Sec. 6. All reports on scientific subjects and all scientific discussions and papers heard before the Association shall be referred to the KENTUCKY MEDICAL JOURNAL for publication. The editor, with the consent of the Councilor for the District in which he resides may curtail or abstract papers or discussions, and the Council may return any paper to its author which it may not consider suitable for publication.

Sec. 7. All commercial exhibits during the annual session shall be within the control and direction of the Council.

#### CHAPTER VIII.—COMMITTEES

Section 1. The standing committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Medical Education.

A Medico-Legal Committee.

A Committee on Arrangements, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

Sec. 2. The Committee on Scientific Work shall consist of three members of which the President-elect shall be a member and Chairman, and the Secretary shall be a member and Secretary, and shall determine the character and scope of the scientific proceeding of the Association, subject to the provisions or the instructions of the House of Delegates or of the Association, or to the provisions of the Constitution and By-Laws. Thirty days previous to each annual session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented, which shall be adhered to by the Association as nearly as practicable.

Sec. 3. The Committee on Public Policy and Legislation shall consist of three members and the President and Secretary. Under the direction of the House of Delegates it shall represent the Association in securing and enforcing legislation in the interest of the public health and scientific medicine. It shall keep in touch with the profession and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people, and shall utilize every organized influence in local, state and national affairs and elections. Its work shall be done



with dignity becoming a great profession and with that wisdom which will make effective its work and influence. It shall have authority to be heard before the entire Association upon questions of great concern at such times as may be arranged during the annual session.

Sec. 4. The Committee on Arrangements shall consist of the component society in the territory in which the annual session is to be held. It shall by committees of its own selection, provide suitable accommodations for the meeting-places of the Association and of the House of Delegates, and of their respective committees, and shall have general charge of all arrangements. Its Chairman shall report an outline of the arrangements to the Secretary for publication in the program, and shall make additional announcements during the session as occasion may require.

Sec. 5. The Medico-Legal Committee shall consist of three members, one of whom, the Chairman, shall be elected by the Council for five years, and the Secretary and Treasurer shall be the other two members *ex-officio*. This committee shall select and fix the compensation for an attorney, who shall act as General Counsel, and if required, additional local counsel. The Association through this Committee shall defend its members who are in good standing against unjust suits for malpractice.

#### CHAPTER IX.—ASSESSMENTS AND EXPENDITURES

Section 1. The assessment of five dollars per capita on the membership of the component societies is hereby made the annual dues of this Association. The Secretary of each county society shall forward its assessment together with its roster of all officers and members, lists of delegates, and list of non-official physicians of the county to the Secretary of this Association on the first day of January in each year.

Sec. 2. Any county society which fails to pay its assessments, or make the report required, on or before the first day of April in each year, shall be held as suspended, and none of its members, or delegates shall be permitted to participate in any of the business or proceedings of the Association or of the House of Delegates until such requirements have been met.

Sec. 3. All motions or resolutions appropriating money, shall specify a definite amount, or so much thereof as may be necessary for the purpose indicated, and must be approved by the Council and House of Delegates.

#### CHAPTER X.—RULES OF CONDUCT

The Principles set forth in the Principles of Ethics of the American Medical Association shall govern the conduct of members in

their relation to each other and to the public.

#### CHAPTER XI.—RULES OF ORDER

The deliberations of this Association shall be governed by parliamentary usage as contained in Roberts Rules of Order, unless otherwise determined by a vote of its respective bodies.

#### CHAPTER XII.—COUNTY SOCIETIES

Section 1. All county societies now in affiliation with the State Association or those that may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws shall upon application to the House of Delegates, receive a charter from and become a component part of this Association.

Sec. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

Sec. 3. Charters shall be issued only upon approval of the House of Delegates and shall be signed by the President and Secretary of this Association. The House of Delegates shall have authority to revoke the charter of any component county society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

Sec. 4. Only one component medical society shall be chartered in any county. Where more than one county society exists, friendly overtures and concessions shall be made with the aid of the Councilor of the District if necessary and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

Sec. 5. Each county society shall judge of the qualifications of its own members, but as such societies are the only portals to this Association, every reputable and legally registered physician who is practicing, or who will agree to practice non-sectarian medicine shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every physician in the county to become a member.

Sec. 6. Any physician who may feel aggrieved by the action of the society of the county in refusing him membership, or in suspending or expelling him, shall have the right to appeal to the Council, which, upon a majority vote may permit him to become a member of an adjacent county society.

Sec. 7. In hearing appeals the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a board and as individual councilors in dis-

trict and county work, effort at conciliation and compromise shall precede all such hearings.

Sec. 8. When a member in good standing in a component society moves to another county in the State, his name, upon request shall be transferred without cost to the roster of the county society into whose jurisdiction he moves.

Sec. 9. A physician living in or near a county line may hold membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

Sec. 10. Each county society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral and material conditions of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

Sec. 11. Frequent meetings shall be encouraged, and the most attractive programs arranged that are possible. The younger members shall be especially encouraged to do post-graduate and original research work, and to give the society the first benefit of such labors. Official position and other preferences shall be unstintingly given to such members.

Sec. 12. At the time of the annual election of officers each county society shall elect a delegate or delegates to represent it in the House of Delegates of this Association in the proportion of one delegate to each twenty-five members or major fraction thereof, and the secretary of the society shall send a list of such delegates to the Secretary of this Association at least sixty days before the Annual Session.

Sec. 13. The Secretary of each county society shall keep a roster of its members and a list of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary. He shall furnish an official report containing such information, upon blanks supplied him for the purpose, to the Secretary of this Association, on the first day of January of each year, or as soon thereafter as possible, and at the same time that the dues accruing from the annual assessment are sent in. In keeping such roster the Secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

Sec. 14. The Secretary of each county society shall report to the Kentucky Medical Journal full minutes of each meeting and forward to it all scientific papers and discussions which the society shall consider worthy of publication.

#### CHAPTER XII.—AMENDMENTS

These By-Laws may be amended by any Annual Session by a two-thirds vote of all the delegates present at that session, after the amendment has been laid on the table for one day.

### CONSTITUTION AND BY-LAWS FOR COUNTY SOCIETIES

Prepared by the Committee on Organization of the American Medical Association of which the late Dr. J. N. McCormack was Chairman.

#### ARTICLE I.—NAME AND TITLE OF THE SOCIETY

The name and title of this organization shall be the \_\_\_\_\_ County Medical Society.

#### ARTICLE II.—PURPOSE OF THE SOCIETY

The purpose of this society shall be to bring into one organization the physicians of \_\_\_\_\_ County, so that by frequent meetings and full and frank interchange of views they may secure such intelligent unity and harmony in every phase of their labor as will elevate and make effective the opinions of the profession in all scientific, legislative, public health, material and social affairs, to the end that the profession may receive that respect and support within its own ranks and from the community to which its honorable history and great achievements entitle it; and with other county societies to form the \_\_\_\_\_ State Medical Association, and through it, with other state associations, to form and maintain the American Medical Association.

#### ARTICLE III.—ELIGIBILITY

Every legally registered physician residing and practicing in \_\_\_\_\_ County who is of good moral and professional standing and who does not support or practice, or claim to practice, any exclusive system of medicine, shall be eligible for membership.

#### ARTICLE IV.—MEETINGS

Regular meetings shall be held at such time and place as may be determined by the Society.

Special meetings may be called by the President and shall be called on a written request of five members. A call for a special meeting shall state the object of such meeting, at which no business except that stated in the call shall be transacted.

#### ARTICLE V.—OFFICERS.

The officers of this Society shall consist of a President, Vice-President, Secretary,



Treasurer, Delegates and Board of three Censors. These officers, except the Delegates and Board of Censors, shall be elected annually. Delegates shall be elected for two years, and in accordance with the constitution and by-laws of the state association. One member of the Board of Censors shall be elected each year to serve for three years, provided that at the first election after the adoption of this constitution one member of the Board shall be elected for one year, one for two, and one for three years.

#### ARTICLE VI.—FUNDS AND EXPENSES

Funds for meeting the expenses of the Society shall be raised by annual dues, special assessments and voluntary contributions. Funds may be appropriated by vote of the Society for such purposes as will promote its welfare and that of the profession.

#### ARTICLE VII.—CHARTER

The Society shall apply to the council of the state association for a charter at the meeting at which this constitution and by-laws is adopted, or as soon thereafter as practicable, and the charter shall be kept by the Secretary.

#### ARTICLE VIII.—INCORPORATION

The Society shall have authority to appoint a Board of Trustees and to provide for articles of incorporation whenever it may deem this necessary.

#### ARTICLE IX.—AMENDMENTS

The Society may amend any article of this constitution by a two-thirds vote of its members at any regular meeting, provided that such amendment or amendments are not in conflict with the laws and regulations of the state association; provided, also that such amendment shall have been read in open session at a previous regular meeting and shall have been sent by mail to each member ten days in advance of the meeting at which final action is to be taken.

#### BY-LAWS

##### CHAPTER I.—MEMBERSHIP

Section 1. The Society shall judge of the qualification of its members, but as it is the only door to the state medical association and to the American Medical Association for physicians within its jurisdiction, every reputable and legally qualified physician of \_\_\_\_\_ County who does not support or practice, or claim to practice, sectarian medicine, shall be eligible to membership.

Sec. 2. A candidate for membership shall make application in writing and shall state his age, his college and date of graduation, the place in which he has practiced, and the date of registration in this state. The application must be accompanied by the admission fee and must be endorsed by two members of this Society. It shall be referred to the Board of Censors, who shall inquire into the standing of the applicant, assure themselves that he or she is duly registered accord-

ing to the laws of the state, and report at the next regular meeting of this Society. Election shall be by ballot, and two-thirds of the votes of the members present and voting shall be necessary to elect. The application shall be returned to the Secretary, who shall file it for future reference. Applications for membership from rejected candidates shall not be received within six months of such rejection.

Sec. 3. A physician, accompanying his application with a transfer card from another component county society of this or any state within 60 days of the issuance of said card, shall be admitted without fee on a majority vote of the members present, and without the application being referred to the Board of Censors. Such application may be acted on at the meeting at which it is presented on the vote of three-fourths of the members present, otherwise it shall lie over until the next regular meeting. No annual dues for the current year shall be charged against such members, provided the same have been paid to the Society from which the applicant comes.

Sec. 4. A physician residing in an immediately adjoining county may become a member of this Society in like manner and on the same terms as a physician living in this county, on permission of the county society of the county in which the applicant lives.

Sec. 5. A member in good standing who is free from all indebtedness to this Society, and against whom no charges are pending wishing to withdraw, shall be granted a transfer card. This card shall state the date the member associated himself with this Society, the date of issuance of the card, and shall be signed by the President and Secretary. It shall be accompanied with a copy of the application presented at the time the member joined the Society, for information to the Society to which the member desires to attach himself.

Sec. 6. All members shall be equally privileged to attend all meetings and take part in all proceedings, and shall be eligible to any office or honor within the gift of the Society so long as they conform to this constitution and by-laws, including the payment of dues. A member who is under sentence of suspension or expulsion shall not be permitted to take part in any of the proceedings, or be eligible to any office until relieved of such disability. And, provided further, that none of the privileges of membership shall be extended to any person not a member of this Society except on a majority vote of the Society in regular meeting.

Sec. 7. A member who is guilty of a criminal offense or of gross misconduct either as a physician or as a citizen, or who violates any of the provisions of this constitution and

by-laws, shall be liable to censure, suspension or expulsion. Charges against a member must be made in writing and be delivered to the Secretary, who shall immediately furnish a copy to the accused and to the Chairman of the Board of Censors. The Board of Censors shall investigate the charges on their merits, but no action shall be taken by the Board within ten days of the presentation of the charges to the accused, nor before giving the accused and accusers ample opportunity to be heard. The board shall report (1) that the charges are not sustained; or (2) that the charges are sustained and that the accused be (a) censured; (b) suspended for a definite time, or (c) expelled. Censure or suspension shall require a two-thirds vote of the members present and voting, and a three-fourths vote of those present and voting shall be required to expel a member. No action shall be taken by the Secretary in such cases until at least six weeks have elapsed since the filing of the charges. A member suspended for a definite time shall be reinstated at the expiration of the time.

Sec. 8. Kindly efforts in the interest of peace, conciliation or reformation, so far as possible and expedient, shall precede the filing of formal charges affecting the character or standing of a member, and the accused shall have opportunity to be heard in his own defense in all trials and proceedings of the nature.

Sec. 9. Members expelled from this Society for any cause shall be eligible for membership after one year from date of expulsion and on the same terms and in like manner as original applicants.

#### CHAPTER II.—POWERS AND DUTIES

Section 1. This Society shall have general direction of the affairs of the medical profession of the county, and its influence shall be constantly exerted to better the scientific, material and social condition of every physician within its jurisdiction. Systematic efforts shall be made by each member, and by the Society as a whole, to increase the membership until it embraces every reputable physician in the county.

Sec. 2. A meeting shall be held at——— p. m. on the ———— in each month (or oftener),——— members shall constitute a quorum.

The officers and committee on program shall profit by experience and by example of other similar societies, and strive to arrange for the most attractive and successful proceedings for each meeting. Crisp papers and discussions and reports of cases shall be arranged for and encouraged, and tedious and profitless proceedings and discussions shall be avoided as far as practicable.

Sec. 8. Agreements and schedules of fees shall not be made by this Society, but at least

one meeting during each year shall be set apart for a discussion of the business affairs of the profession of the county, with the view of adopting the best methods for the guidance of all. In all proper ways the public shall be taught that business methods and prompt collections are essential to the equipment of the modern physician and surgeon, and that it suffers even more than the profession when this is not recognized.

Sec. 4. This Society shall endeavor to educate its members to the belief that the physician should be a leader in his community, in character, in learning, in dignified and manly bearing, and in courteous and open treatment of his brother physicians, to the end that the profession may occupy that place in its own and the public estimation to which it is entitled.

#### CHAPTER III.—OFFICERS

Section 1. The Officers of the Society shall be elected at the December meeting in each year, which shall be known as the annual meeting. Nominations shall be made by informal ballot, and all elections be by ballot. The vote of the majority of all the members present shall be necessary to an election.

Sec. 2. The President shall preside at the meetings of the Society, and perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession in the county during the year, and it shall be his pride and ambition to leave it in better condition as regards both scientific attainments and harmony than at the beginning of his term of office.

Sec. 3. The Vice-President shall assist the President in the performance of his duties, shall preside in his absence, and on his death, resignation or removal from the county, shall succeed to the presidency.

Sec. 4. The Secretary shall record the minutes of the meetings and receive and care for all records and papers belonging to the Society, including its charter. He shall notify each member of the Society as to the time and place of each meeting, and, whenever possible, give the program for the meeting. He shall keep account of and promptly turn over to the Treasurer all funds of the Society which may come into his hands. He shall make and keep a list of the members of this Society in good standing, noting of each his correct name, address, place and date of graduation, and the date of the certificate entitling him to practice medicine in this state; and in a separate list he shall note the same facts in regard to each legally qualified physician in this county not a member of this Society. It shall be his duty to send a copy of such lists, on blank forms furnished him for that purpose, to the Secretary of the state association at such time as may be



designated by the state association. In making such lists he shall endeavor to account for each physician who has moved into or out of the county during the year, stating when possible, both his present and past address. At the same time, and with his report of such lists of members and physicians, he shall transmit to the state association his order on the Treasurer for the annual dues of the Society.

Sec. 5. The Treasurer shall receive all dues and money belonging to the Society from the hands of the Secretary or members, and shall pay out the same only on the written order of the President, countersigned by the Secretary.

Sec. 6. The Delegates shall attend and faithfully represent the members of this Society and the profession of this county in the House of Delegates of the state association, and shall make a report of the proceedings of that body to this Society at the earliest opportunity.

#### CHAPTER IV.—COMMITTEES

Section 1. There shall be a Board of Censors as provided in the constitution, a Standing Committee on Program and Scientific Work, a Committee on Public Health and Legislation, and such special committees as may from time to time be deemed necessary.

Sec. 2. Board of Censors. This Board shall examine and report on the qualification of applicants for membership, subjecting each applicant to such examination as it may deem necessary. It shall investigate charges preferred against a member, and report its conclusions and recommendations to the Society. In case of the absence of a member of the Board, the President may appoint some member to fill the vacancy. The senior member of the Board in point of service shall be Chairman of the Board.

Sec. 3. Committee on Program and Scientific Work. This Committee shall consist of the President, Vice-President and Secretary. It shall be its duty to promote the scientific and social functions of the Society by arranging attractive programs for each meeting and by urging each member to take part in the scientific work. It shall stimulate fraternalism and good feeling among the members in every way possible. (Provisions should be made in this Section for annual luncheons, dinners etc., which the Committee believes to be an excellent way to bring members together. Such occasions should be made as inexpensive as possible).

Sec. 4. Committee on Public Health and Legislation. This Committee shall consist of three members who shall be appointed annually by the President. It shall be its duty to enforce and support the sanitary and medical laws of the state in this county, to

co-operate with the Committee on Public Policy and Legislation of the state association in all matters pertaining to legislation, and to prosecute quacks and medical pretenders in this county.

#### CHAPTER V.—FUNDS AND EXPENSES

Section 1. The admission fee, which must accompany the application, shall be \$——, and shall include the annual dues for the fiscal year. The admission fee shall be returned if the applicant is not accepted.

Sec. 2. The annual dues shall be \$—— and shall be payable on January 1 of each year. Any member who shall fail to pay his annual dues by April 1 shall be held as suspended without action on the part of the Society. A member suspended for non-payment of dues shall be restored to full membership on payment of all indebtedness. Members more than one year in arrears shall be dropped from the roll of members.

Sec. 3. The fiscal year of this Society shall be from January to December, inclusive.

#### CHAPTER VI.—ORDER OF BUSINESS

The order of business shall be as follows:

1. Call to order by the President.
2. Reading of the minutes of last meeting.
3. Clinical cases.
4. Papers and discussions.
5. Unfinished business.
6. Miscellaneous business.
7. Announcements.
8. Adjournment.

#### CHAPTER VII.—RULES OF ORDER

The deliberations of this Society shall be governed by parliamentary usage as contained in Roberts' Rules of Order, unless otherwise determined by vote.

#### CHAPTER VIII.—THE PRINCIPLES OF MEDICAL ETHICS

The Principles of Medical Ethics of the American Medical Association shall govern this Society.

#### CHAPTER IX.—AMENDMENTS

These by-laws may be amended at any regular meeting by a two-thirds vote therefor, provided that such amendment has been read in open session at the preceding regular meeting and a copy of the same has been sent to each member by the Secretary 10 days in advance of the meeting at which final action is to be taken.

**Chemical Test for Yyrogen in Distilled Water for Intravenous Injections.**—The method Carter proposes seems to indicate that distilled waters not discharging the color are free from pyrogens and, therefore, from febrile-producing organic substances. The test is performed by heating 100 cc. of distilled water in a clean pyrex beaker to boiling, acidulating with 10 cc. of dilute sulphuric acid (10 per cent), and adding 0.1 cc. of twentieth normal potassium permanganate. The color of the solution should not be destroyed by continuing the boiling for ten minutes.

## REPORT OF BUSINESS MANAGER

## TO THE HOUSE OF DELEGATES:

With the publication of the October Journal, all articles, in fact all material that has been submitted to the office will have been published. This includes all papers read before County Medical Societies, the State Association papers, the verbatim proceedings of the House of Delegates, and the General Session. A careful perusal of the following figures will show in detail the reading matter of the Journal for the fiscal year:

Editorials .....	65
Scientific Editorials .....	7
Official Announcements .....	10
Original Articles.....	114
County Society Reports .....	49
Memoria s .....	2
Book Reviews .....	41
Discussions .....	260
News Items .....	7
Number of pages of Reading Matter.....	628
Number of pages of Advertisements.....	356
Number of pages Woman's Auxiliary.....	38

In 1929 there were 36 papers read before the annual meeting, while in 1930, due to the arrangement of a medical and surgical section, 50 papers were read. The JOURNAL has published all these additional papers with discussion, as well as the entire proceedings of the Eye, Ear, Nose and Throat Section, and has made a small profit, as will be seen by studying the report of the auditor.

A visit was made in November to the offices of the American Medical Association, for a conference on the improvement in the form of the JOURNAL and its general makeup. As a result of the meeting, heavier paper was used for the outside cover pages, which enhances the appearance of the JOURNAL and makes it a more attractive advertising medium. The headings<sup>1</sup> of the original articles have been rearranged and black face type used for the table of contents. The beautiful colored inserts in the advertising columns are a special feature, exclusively used in only the American Medical Association Journal and the allied State Journals. The following letter from the Manager of the Co-operative Medical Advertising Bureau of the American Medical Association is added to this report with pride and pleasure.

Chicago, Ill., July 23, 1931

Dear Doctor South:

In compliance with your request to comment on the physical appearance of the Kentucky Medical Journal, we have carefully compared several of the late numbers. We have been so favorably impressed by the improvements in the quality of the paper, the print and the evident care in the makeup, there seems little left to suggest. While some

of the black face type, especially in a few advertisements, seems worn and might be replaced by new type, the evident care shown in printing half tones and in the use of a good quality of ink on good paper really leaves little to be said except in way of commendation.

Advertisers are keen observers of quality. In fact, quality of circulation in many ways means fully as much as quantity. Necessarily the paid circulation of each State Medical Journal is limited to the field it covers, and the quality of each Journal should reflect the quality of the circulation.

We believe the many national advertisers who use the Kentucky Medical Journal is evidence of their appreciation of it as a quality medium. We should particularly like to commend your use of colored inserts. These pictorial advertisements with other illustrations of institutions, give the contents of a purely scientific Journal an artistic touch and help to relieve it of the charge that scientific Journals can not be popular publications. The hundreds of members of your Woman's Auxiliary as well as physicians will be interested in these artistic features.

Very truly yours,

CO-OPERATIVE MEDICAL ADVERTISING BUREAU,  
E. W. Mattson, Manager.

Through the courtesy of national association, a booth of all the State Journals will be placed in the Commercial Exhibit Hall, at the Lexington meeting, which will give the physicians some idea of the activities of other state associations.

The County Medical Society is the foundation of the State and National Medical organization, and is the clearing house and the distributing agent for medical advancement and leadership, and the success of these organizations depends upon the ability and proficiency of the Secretary. The JOURNAL office, with all its equipment, is ever ready to assist the Secretaries in arranging programs, supplying speakers, printing letters and other activities connected with securing a good meeting; many Secretaries have accepted this service. It is with unusual pride that these County Societies have not allowed their membership to lag, and in spite of adverse economic conditions, the devastating drouth and many other obstacles, the membership this year is equal to 1930.

## EXHIBITORS

The wide spread financial depression has not affected the sale of exhibit space, and as usual every booth will be occupied by various manufacturing products that comprise a physician's armamentarium. This department is located in the rotunda of the Memorial Hall near the spacious portico, and a few hours spent among these exhibits is equal to



a real post-graduate course—and as the expense of the annual meeting is met by the sale of exhibit space, we urge your patronage of these firms.

Our advertisers have shown their appreciation of the value of the JOURNAL as an advertising medium by increasing their space in many instances, and have not curtailed this department, and this has made it possible to publish a larger and better JOURNAL without additional expense to the Association, as the income from our advertisers has made this possible. Advertisers will continue to seek the pages of the JOURNAL only so long as it pays them. In other words, patronize our advertisers and specify their products whenever practical.

The fiscal year of the Association closes with a far more rosier hue than is present in other fields of endeavor, and it is due to the courage and loyalty of our Kentucky doctors.

L. H. SOUTH, M. D.

### AUDITOR'S REPORT

TO THE COUNCIL OF THE KENTUCKY STATE  
MEDICAL ASSOCIATION:  
Gentlemen:

Upon request, I have made a complete audit of the books and accounts of your Secretary, Dr. A. T. McCormack, and your Treasurer, Dr. M. McDowell, for the period beginning September, 1930 and ending September 1, 1931.

All receipts were properly accounted for and every disbursement was charged to the proper account, being in the form of a voucher check signed by the proper officers and bearing the endorsement of the payee.

The exhibits herewith submitted set forth in detail the financial transactions from every angle and show the true condition of your affairs at this date. Your records are correctly and neatly kept.

I have also checked the receipts and disbursements of the Treasurer, Mrs. Dugan, of the Woman's Auxiliary of the State Medical Association and find them correct as set forth in the schedules submitted herewith.

Respectfully,

B. P. EUBANK.

Reconciliation of Treasurer's accounts for period September 1930 to September 1, 1931, viz:

Balance on hand at last report.....	\$ 9,549.82	
Less Vouchers then outstanding....	3,314.65	
Balance agreeing with Secretary's last report....	\$ 6,235.17	
Amount received from Secretary for period .....	17,509.94	
Amount received from Interest on Bonds and Savings.....	550.90	18,060.84
Total .....		\$24,296.01
<b>DISBURSEMENTS</b>		
Expense .....	\$16,658.47	
Balance September 1, 1931.....		
Checking Account.....	\$ 7,086.64	

Additional Balance September 1, 1931, in Savings Account....	550.90	7,637.54	\$24,296.04
Balance September 1, 1931, Checking Account			\$ 7,086.64
Reconciliation:			
Balance in the National Bank of Cynthiana, Cynthiana, Kentucky, Treasurer's Account .....			\$10,672.82
Vouchers Outstanding, viz:			
No. 130 July 31, 1930, Louis Vissman .....		\$ 20.10	
No. 118, May 29, 1931, Clarence Neighbors, P. M. ....		50.00	
No. 119 June 30, 1931, A. T. McCormack, M. D. ....		276.80	
No. 120 June 30, 1931, L. H. South, M. D. ....		100.00	
No. 121 June 30, 1931, J. F. Blackerby.....		100.00	
No. 122 June 30, 1931, Elva Grant .....		75.00	
No. 123 June 30, 1931, Bush-Krebs Company....		10.88	
No. 124 June 30, 1931, Rebecca R. Cassell.....		6.65	
No. 125 June 30, 1931, Huffaker, Hagan & Berry .....		150.00	
No. 126 June 30, 1931, Times-Journal Publishing Co. ....		43.00	
No. 127 June 30, 1931, Times-Journal Publishing Co. ....		583.14	
No. 128 June 30, 1931, Times-Journal Publishing Co. ....		531.80	
No. 129 July 31, 1931, A. T. McCormack, M. D. ....		170.00	
No. 130 July 31, L. H. South, M. D. ....		100.00	
No. 131 July 31, 1931, J. F. Blackerby.....		100.00	
No. 132 July 31, Elva Grant .....		75.00	
No. 133 July 31, 1931, Times-Journal Publishing Co. ....		350.00	
No. 134 Aug. 31, 1931, A. T. McCormack, M. D. ....		150.00	
No. 135 Aug. 31, 1931, L. H. South, M. D. ....		100.00	
No. 136 Aug. 31, 1931, J. F. Blackerby.....		100.00	
No. 137 Aug. 31, 1931, Elva Grant .....		75.00	
No. 138 Aug. 31, 1931, Clarence Neighbors, P. M. ....		50.00	
No. 139 Aug. 31, 1931, Times-Journal Publishing Co. ....		350.00	
No. 140 Aug. 31, 1931, Woman's Auxiliary to the Ky. State Medical Ass'n. ....	18.81	\$3,586.18	
Balance agreeing with Secretary.....			\$7,086.64
Vouchers Nos. 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, are in the hands of the Secretary to be delivered.			

### STATEMENT OF ASSETS

Balance in the National Bank of Cynthiana, Cynthiana, Ky., to the credit of the Kentucky State Medical Association, M. McDowell, M. D., Treasurer, (Checking Account).....		\$10,672.82
Less vouchers outstanding .....		\$3,586.18
		\$ 7,086.64
Savings Account .....	\$6,136.71	
Interest on Bonds .....	300.00	
Interest on Savings .....	253.90	6,687.61
Kentucky State Medical Ass'n. Student Loan Fund Account .....	\$264.00	
Less Loan for Medical Education .....	250.00	14.00
Interest on Loan Fund .....	5.28	19.28
Total Amount in Bank.....		\$ 13,793.53
Louisville Title Bonds, Nos. 3, 5, 8, 13 and 40, at \$1,000.00 each, in hands of Treasurer, deposited in the National Bank of Cynthiana, Cynthiana, Ky. ....		5,000.00
Office Furniture, etc. (see exhibit "D") .....		1,232.02
Total .....		\$20,026.15

## EXHIBIT "A"

## RECEIPTS

Dues from County Societies \$3,937.50	
Less 33% of balance of \$50.00 in National Bank of Kentucky when closed	16.50
	\$8,921.00
Income of Journal (Exclusive of Investments, etc.)	8,458.34
Less 33% of balance of \$673.93 in National Bank of Kentucky when closed	222.40
	8,235.94
Student Loan Fund Transferred	250.00
Post Graduate Courses, 1930	21.00
Post Graduate Courses 1931	82.00
	103.00
Interest on Louisville Title Bonds Nos. 2, 5, 8, 13, 40	300.00
Interest on Savings Account	250.90
	550.90
Total Receipts	\$18,060.84
Balance on hand September 1, 1930	6,235.17
Total	\$24,296.01

## DISBURSEMENTS

State Medical Association:	
President's Sundries	\$ 9.00
Secretary's Salary	1,800.00
Secretary's Stenographer's Salary	900.00
Secretary's Sundries	394.80
Treasurer's Bond and Expense	12.50
Treasurer's Sundries	29.70
Officers', Councilors' and Committee Expenses	191.30
Delegate's Expense	102.34
Committee on Public Policy, Expense	1,269.99
Practice Act, Medical Enforcement	300.00
Attorney's Fees, Medico-Legal Committee	1,125.00
Costs and Expenses, Medico-Legal Committee	190.05
Association Sundries	424.98
Post Graduate Course Expense	52.55
Bowling Green Meeting Expense	1,156.91
Lexington Meeting Expense	5.50
Eye, Ear, Nose and Throat Section Expense	60.00
Irvine Estate Expense	9.85
McDowell Day Expense	367.36
Student Loan Fund	250.00
Total State Medical Association	\$8,581.84
KENTUCKY MEDICAL JOURNAL:	
Business Manager's Salary	\$1,200.00
Business Manager's Sundries	41.00
Journal Advertisement Collections Paid	
Woman's Auxiliary, Kentucky State Medical Association	18.81
Journal Printing	5,779.47
Journal Postage	230.00
Journal Sundries	807.35
Total Journal	\$ 8,076.63
Grand Total	\$16,658.47

Balance on hand this date,	
Checking Account	\$7,086.64
Balance on hand this date,	
Savings Account	550.90
	7,637.54
Total	\$ 24,296.01

## EXHIBIT "B"

## Student Loan Fund

1930	
Sept. 1 Total Receipts on hand	\$ 264.00
1931	
Jan. 1 Interest	5.28
Total	\$ 269.28
Feb. 10 Loan for Medical Education	250.00
Balance on hand	\$ 19.28

## EXHIBIT "C"

Detailed list of receipts from County Societies from September 1930 to September 1931, compared with incomes of same period last year:

	1930	1931		
Adair	\$ 50.00	\$ 65.00	Boyle	55.00
Allen	50.00	45.00	Bracken	30.00
Anderson	50.00	45.00	Breathitt	40.00
Ballard	40.00	35.00	Breckenridge	55.00
Barren	70.00	80.00	Bullitt	15.00
Bath	35.00	50.00	Butler	20.00
Bell	120.00	135.00	Caldwell	55.00
Boone	10.00	15.00	Calloway	80.00
Bourbon	80.00	75.00	Campbell-Kenton	540.00
Boyd	230.00	240.00	Carlisle	30.00
			Carroll	40.00
			Carter	62.20
			Casey	25.00
			Christian	135.00
			Clark	105.00
			Clay	30.00
			Clinton	15.00
			Crittenden	35.00
			Cumberland	40.00
			Daviess	185.00
			Elliott	35.00
			Esell	500.00
			Fayette	60.00
			Fleming	25.00
			Floyd	80.00
			Franklin	60.00
			Fulton	5.00
			Gallatin	30.00
			Garrard	15.00
			Grant	110.00
			Graves	42.10
			Grayson	30.00
			Green	40.00
			Greenup	260.00
			Hancock	105.00
			Harlan	85.00
			Hardin	55.00
			Harrison	75.00
			Hart	45.00
			Henderson	35.00
			Henry	95.00
			Hickman	20.00
			Hopkins	2,012.50
			Hopkins	55.00
			Jackson	50.00
			Jefferson	5.00
			Jessamine	55.00
			Johnson	50.00
			Knott	5.00
			Knox	55.00
			Larue	40.00
			Laurel	40.00
			Lawrence	40.00
			Lee	15.00
			Leslie	5.00
			Letcher	130.00
			Lewis	20.00
			Lincoln	60.00
			Livingston	10.00
			Logan	80.00
			Lyon	20.00
			McCracken	220.00
			McCreary	30.00
			McLean	35.00
			Madison	195.00
			Magoffin	10.00
			Marion	50.00
			Marshall	45.00
			Martin	5.00
			Mason	85.00
			Meade	5.00
			Menifee	65.00
			Mercer	25.00
			Metcalf	15.00
			Monroe	60.00
			Montgomery	10.00
			Morgan	100.00
			Muhlenberg	40.00
			Nelson	50.00
			Nicholas	25.00
			Ohio	30.00
			Oldham	25.00
			Owen	10.00
			Owsley	35.00
			Pendleton	150.00
			Perry	90.00
			Pike	10.00
			Powell	50.00
			Pulaski	10.00
			Robertson	15.00
			Rockcastle	10.00
			Rowan	25.00
			Russell	10.00
			Scott	75.00
			Shelby	65.00
			Simpson	55.00
			Spencer	5.00
			Taylor	45.00
			Todd	30.00
			Trigg	25.00
			Trimble	5.00
			Union	55.00
			Warren-Edmonson	140.00
			Washington	40.00
			Wayne	5.00



Webster	85.00	40.00
Whitley	125.00	100.00
Wolfe	20.00	10.00
Woodford	25.00	45.00

Total	\$8,976.80	\$8,947.50
Less Trigg County check lost in transit		10.00

Total ..... \$8,937.50

## EXHIBIT "D"

Invoice of the Property of the Association:  
September 1, 1931.

5,000 Addressograph plates, completely addressed	\$ 300.00
1 Remington typewriter	25.00
1 Desk	50.00
1 Typewriter chair	9.00
1 Filing Cabinet	64.75
Rubber Stamps	9.00
Guide Cards	
1-3 Adding Machine	75.00
1 Electric Fan	18.00
1 Globe Safe with fixtures	130.00
2 Cabinets for Addressograph, 36 drawers each, @ \$45.00	90.00
2 Cabinets for Addressograph, 18 drawers each, @ \$30.00	60.00
1 Cabinet for Addressograph, 9 drawers each, @ \$15.00	15.00
64 Drawers @ 95c each	60.80

Total	\$ 911.55
90% Reduction for Depreciation	820.39

Total Old Property	\$ 91.16
28 Bound Volumes Kentucky Medical Journals, 1930-1931	280.00
1 N. F. Q. Addressograph and Ejector	\$285.00
Less 30% Depreciation	85.50
1 Underwood typewriter	83.03
Less 10% Depreciation	8.30

4,500 No. 5 2-cent envelopes, plain, @ \$21.60 per M.	97.20
750 No. 8 2-cent envelopes, plain, @ 22.34 per M.	16.75
9,500 No. 5 2-cent envelopes, Ky. State Medical Ass'n, @ 21.60 per M.	205.20
12,000 No. 8 2-cent envelopes, Ky. State Medical Ass'n, @ 22.34 per M.	268.08

Total ..... \$1,232.62

## EXHIBIT "E"

Secretary's Monthly Balance Sheet, agreeing with books.

1930			
Sept. 1—Balance on hand		\$ 6,235.17	
Oct. 1	\$ 1,960.34	\$ 1,078.77	\$ 5,355.60
Nov. 1	2,071.41	2,077.89	5,360.08
Dec. 1	2,246.28		3,113.80
1931			
Jan.	999.58	619.65	2,733.87
Feb. 1	854.63	3,042.16	4,921.40
Feb. 10 Amount transferred from Student Loan Fund		250.00	5,171.40
March 1	1,598.11	1,760.31	5,333.60
April 1	1,920.16	2,411.36	5,824.80
May 1	460.50	3,695.60	9,059.90
June 1	1,031.38	1,561.52	9,590.04
July 1	1,877.27	1,012.68	8,735.45
Aug. 1	795.00		7,930.45
Sept. 1	843.81		7,086.64

	\$16,658.47	\$17,509.94	
Balance on hand September 1,			
1930	6,235.17		
Total Expenses	16,658.47	23,745.11	

## EXHIBIT "F"

Collections by Secretary on account of Kentucky State Medical Association, corresponding with checks, deposit slips and receipts, filed.

1930			
Oct. 1—To collections to date		\$ 190.00	
Nov. 1—To collections to date		170.00	
1931			
Jan. 1—To collections to date		190.00	
Feb. 1—To collections to date		1,855.50	
March 1—Collections to date		1,200.00	
April 1—Collections to date		1,630.00	
May 1—Collections to date		3,150.00	
May 7—To 67% of Association dues in National Bank of Kentucky when closed Nov. 15-30		33.50	

June 1—To collections to date	385.00
July 1—To collections to date	117.50

Total for year ..... \$8,921.00

## EXHIBIT "G"

Collections by Editor on account of the Journal, corresponding with checks, deposit slips and receipts filed.

1930			
Oct. 1—To collections to date		\$ 888.77	
Nov. 1—To collections to date		1,886.89	
1931			
Jan. 1—To collections to date		429.65	
Feb. 1—To collections to date		1,187.16	
March 1—To collections to date		560.31	
April 1—To collections to date		781.36	
May 1—To collections to date		545.60	
May 7—To 67% of Journal Collections in National Bank of Kentucky when closed Nov. 15, 1930		451.53	
June 1—To collections to date		691.49	
July 1—To collections to date		813.18	

Total for Year ..... \$8,235.94

1930			
Sept. 1—Post Graduate Course, 1930		\$21.00	
1931			
July 1—Post Graduate Course, 1931		82.00	103.00

Total Receipts ..... \$8,338.94

## EXHIBIT "H"

Total membership by Councilor Districts and by Counties for 1931 as compared to that of 1930.

First District—V. A. Stilley, Benton, Councilor

	1930	1931
Ballard	8	7
Caldwell	11	9
Calloway	16	17
Carlisle	6	6
Crittenden	7	7
Fulton	11	13
Graves	22	25
Hickman	7	6
Livingston	2	5
Lyon	4	4
Marshall	9	11
McCracken	44	45
Trigg	5	6
	152	161

Second District—D. M. Griffith, Owensboro, Councilor

Davless	36	37
Hancock	—	—
Henderson	13	16
Hopkins	18	14
McLean	6	5
Muhlenberg	16	19
Ohio	5	6
Union	11	12
Webster	16	7
	121	116

Third District—C. C. Howard, Glasgow, Councilor

Allen	9	9
Barren	14	16
Butler	3	3
Christian	25	32
Cumberland	8	6
Logan	15	17
Metcalfe	5	5
Monroe	3	4
Simpson	11	9
Todd	6	7
Warren-Edmonson	25	22
	125	130

Fourth District—J. I. Greenwell, New Haven, Councilor

Breckinridge	11	9
Enlitt	1	5
Grayson	7	9
Hardin	21	20
Hart	10	6
Larue	8	6
Meade	1	1
Nelson	8	9
Spencer	1	1
	68	66

Fifth District—W. E. Gardner, Louisville, Councilor

Carroll	8	7
Franklin	16	15
Gallatin	1	—
Henry	9	8





Sept. 30—Voucher Check No. 9.		\$14.00
THEOBALD-JANSEN ELECTRIC CO., Louisville,		
To 1 16" AC Signal Osc. Fan.		
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 10.		\$1.50
LOUISVILLE TYPERWRITER & SUPPLY CO., Louisville,		
To Wales Adding Machine Ribbon and installing.		
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 11.		\$114.80
BUSH-KREBS CO., Louisville,		
To 31 Sq. Hts. Ports. of Doctors.	141.00	
Less 20%.	28.20	
	112.80	
To Art Work-Touching Up Copy.	2.00	
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 12.		\$35.00
AMERICAN MEDICAL ASSOCIATION, Chicago,		
To 2500 Inserts of Dr. W. B. McClure's Picture.		
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 13.		\$63.00
BRAKMEIER BROS., Louisville,		
To 300 Gold Bangle Bars, "Bowling Breen 1930."		
Approved by Council and ordered paid by House of Delegates.		
Sept. 30—Voucher Check No. 14.		\$86.35
MAYME SULLIVAN, Louisville,		
To expenses at Post-Graduate School:		
Meals and car fare, self and asst.	8.90	
To honorarium	25.00	
To expense to Bowling Green Meeting and return for self, moving picture operator and Dr. Gilmore, guest at Meeting	52.45	
	86.35	
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 15.		\$8.45
MEPERT EQUIPMENT CO., Louisville,		
To 2500 4x6 White Cards.	5.82	
To 1 box 6-3-4 White Tiger Envs.	1.13	
To 2 Columnar Pads	1.50	
	8.45	
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 16.		\$9.85
BURNAM & GREENLEAF, Attorney, Richmond,		
To expense pertaining to Irvine estate, telephone calls, copy of articles and copy of opinion.		
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 17.		\$25.00
FRED FORCHT, Attorney, Louisville,		
To services taking depositions of Dr. J. H. Brewer and Dr. K. A. Fisher in case Lee Close vs. Dr. J. J. Booker.		
Sept. 30—Voucher Check No. 18.		\$175.00
NOGGLE & GRAHAM, Greensburg,		
To representing Dr. J. J. Booker in case of Lee Close vs. Dr. J. J. Booker.		
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 19.		25.75
H. F. GORIN, Clerk, Green Circuit Court, Greensburg,		
To taxations of cost in Green Circuit Court in case Lee Close vs. Dr. J. J. Booker:		
Defendants's Costs:		
Clerk's Fees	3.25	
Sheriff's Fees	3.50	
Stenographer	15.00	
Jury	4.00	
	25.75	
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 20.		\$24.00
TIMES-JOURNAL PUBLISHING CO., Bowling Green,		
To 250 Applications for Space Blanks.	7.25	
To 250 Commercial Exhibits.	6.25	
To 250 Letterheads and 250 Envelopes.	4.50	
To 300 Programs Post-Graduate Course.	6.00	
Sept. 30—Voucher Check No. 21.		\$235.84
TIMES-JOURNAL PUBLISHING CO., Bowling Green,		
To 2350 80 P. July Issue.	442.00	
To Inserts and scoring	8.50	
To Tabulating Work.	20.00	
To 35 Changes	7.00	
To Envelopes	15.00	
To Printing Envelopes	2.30	
	494.80	
Credit by Check No. 124, as follows:		
To a/c of July Journal.	450.00	
To a/c of July Envs.	15.00	
To a/c of Printing Envs.	2.30	
	467.30	
Less Credit, Check No. 111	7.70	
Less Dec. and May Envelopes		
Paid for but not received.	30.00	37.70
		429.60
Balance due on July Journal.		65.20
To 2250 76 P. August Issue.	422.40	
To 40 changes	8.00	
To Envelopes	15.00	
To Printing Envelopes	2.30	
To Inserts and Scoring	8.50	
	456.20	
Credit by Check No. 131, as follows:		
To a/c of August Journal	435.00	
To a/c of August Envs.	15.00	

To a/c Printing August Envs.....	2.30	452.30	
Balance due on August Journal.....			3.90
To 2500 96 P. September Issue.....		543.44	
To Scoring and Inserting .....		8.50	
To Inserts—No scoring .....		5.00	
To 90802 Ems. set to 6 pt.....		90.80	
To Envelopes .....		15.00	
To Printing Envelopes .....		2.30	
To 40 Changes .....		8.00	
		<u>673.04</u>	
Brought For'd .....		673.04	
Credit by Check No. 137, as follows:			
To a/c of September Journal.....	485.00		
To a/c of September Envelopes.....	15.00		
To a/c of Printing Sept Envs.....	2.30	502.30	
Balance due on Sept. Journal.....		170.74	
		<u>239.84</u>	
Less Credit by Dr. McCormack's Check for Envelopes.....		4.00	
		<u>235.84</u>	
Approved by Council and Ordered Paid by House of Delegates.			
Sept. 30—Voucher Check No. 22.....			\$45.25
MRS. RUTH FLAGG, Louisville,			
To honorarium .....		25.00	
To expense to Bowling Green Meeting and return.....		20.25	
Approved by Council and Ordered Paid by House of Delegates.			
Sept. 30—Voucher Check No. 23.....			\$33.50
AGNES BLAIR, Louisville,			
To honorarium .....		25.00	
To expense to Bowling Green Meeting and return.....		13.50	
Approved by Council and Ordered Paid by House of Delegates.			
Sept. 30—Voucher Check No. 24.....			\$29.00
MRS. R. R. CASSELL, Louisville,			
To honorarium .....		25.00	
To expense to Bowling Green Meeting and return.....		4.00	
Approved by Council and Ordered Paid by House of Delegates.			
Sept. 30—Voucher Check No. 25.....			\$2.25
LOUISVILLE PAPER CO., Louisville,			
To 10 sheets 28x44 No. 691 White Mat Board.			
Approved by Council and Ordered Paid by House of Delegates.			
Sept. 30—Voucher Check No. 26.....			\$2.50
DURLAUF, Louisville,			
To 1 Used Stand.			
Approved by Council and Ordered Paid by House of Delegates.			
Sept. 30—Voucher Check No. 27.....			\$8.00
LOUIS VISSMAN, Clerk, Jefferson Co. Cir. Court Louisville,			
To clerk's costs in case Reddie D. Davis vs. Dr. Walter I. Hume.			
Approved by Council and Ordered Paid by House of Delegates.			
Sept. 30—Voucher Check No. 28.....			\$104.50
TIMES-JOURNAL PUBLISHING CO., Bowling Green,			
To 600 Programs .....		96.00	
To 1 M Bill Heads .....		4.00	
To 800 Filing Cards .....		4.50	
		<u>104.50</u>	
Approved by Council and Ordered Paid by House of Delegates.			
Sept. 30—Voucher Check No. 29.....			\$15.00
JAMES MARTIN, Bowling Green,			
To 3 days' service as night watchman.			
Approved by Council and Ordered Paid by House of Delegates.			
Sept. 30—Voucher Check No. 30.....			\$39.35
DR. D. M. GRIFFITH, Owensboro,			
To expense as Counselor, 2nd District.			
Approved by Council and Ordered Paid by House of Delegates.			
Sept. 30—Voucher Check No. 31.....			\$40.00
DR. W. M. MARTIN, Harlan,			
To expense as Counselor, 8th District.			
Approved by Council and Ordered Paid by House of Delegates.			
Sept. 30—Voucher Check No. 32.....			\$25.00
DR. J. G. OWSLEY, Lilly,			
To honorarium .....			
Approved by Council and Ordered Paid by House of Delegates.			
Sept. 30—Voucher Check No. 33.....			\$157.50
DR. R. C. MCHORD, Lebanon,			
To expense as Counselor, 6th District.			
Approved by Council and Ordered Paid by House of Delegates.			
Oct. 31—Voucher Check No. 34.....			\$150.00
A. T. MCCORMACK, M. D., Louisville,			
To October salary, Secretary.			
Oct. 31—Voucher No. 35.....			\$122.00
L. H. SOUTH, M. D., Louisville,			
To October salary, Business Manager.....		100.00	
To expense to State Meeting and return.....		22.00	
Oct. 31—Voucher Check No. 36.....			\$75.00
ELVA GRANT, Louisville,			
To October salary, Bookkeeper.			
Oct. 31—Voucher Check No. 37.....			\$100.00
J. F. BLACKERBY, Louisville,			
To October services rendered Committee on Public Policy.			
Oct. 31—Voucher Check No. 38.....			\$29.70
M. McDOWELL, M. D., Cynthiana,			
To expense as Treasurer.			
Oct. 31—Voucher Check No. 39.....			\$12.50
SAMUEL D. HINES & CO., Bowling Green,			
To premium on bond for Treasurer, K. S. M. A., for 1 year.			
Oct. 31—Voucher Check No. 40.....			\$150.00



STEPHENS & STEELY, Attys., Williamsburg,	
To attorneys' fees in case B. A. Peace vs. L. B. Crole- M. D.	
Oct. 31—Voucher Check No. 41.....	\$131.30
FAUREST & FAUREST, Attorneys, Elizabethtown,	
To Court Costs in case of Wm. Higgins vs. J. V. Prewitt, M. D.	
Oct. 31—Voucher Check No. 42.....	\$160.00
LOUISVILLE POSTMASTER, Louisville,	
To stamps for McDowell Day Invitations.	
1930	
Oct. 31—Voucher Check No. 43.....	\$1103.41
TIMES-JOURNAL PUBLISHING CO., Bowling Green,	
To 2250 80 P. October Issue.....	442.00
To 30 Changes.....	6.00
To Envelopes.....	15.00
To Printing Envelopes.....	2.30
To Inserting and Scoring.....	8.50
	<u>473.80</u>
Less 26 errors @ 25c each.....	6.50
	467.30
To 2450 108 P. November Issue.....	605.10
To 18,800 Ems. set to 6 pt.....	18.80
To Inserts and Scoring.....	8.50
To Envelopes.....	15.00
To Printing Envelopes.....	2.30
To 50 Changes.....	10.00
	<u>659.70</u>
Less 2% for Cash.....	13.09
Less 42 errors @ 25c each.....	10.50
	<u>636.11</u>
Oct. 31—Voucher Check No. 44.....	\$37.50
TIMES-JOURNAL PUBLISHING CO., Bowling Green,	
To 250 Letterheads and Envs., Pres. Elect.....	4.50
To 250 Letterheads and Env., Coun. 4th Dist.....	4.50
To 1 M Letterheads and Envs., President McClure.....	9.00
To 500 Letterheads and Envs., S. B. Marks, M. D.....	6.50
To 500 Letterheads and Envs., H. D. Abell, M. D.....	6.50
To 500 Letterheads and Envs., R. C. McChord, M. D.....	6.50
	<u>37.50</u>
Nov. 29—Voucher Check No. 45.....	\$222.50
A. T. McCORMACK, M. D., Louisville,	
To November salary, Secretary.....	
	150.00
To contingent expense for McDowell Day.....	
	72.50
Nov. 29—Voucher Check No. 46.....	\$100.00
L. H. SOUTH, Louisville,	
To November salary, Business Manager.	
Nov. 29—Voucher Check No. 47.....	\$79.85
ELVA GRANT, Louisville,	
To November salary, Bookkeeper.....	
	75.00
To expense at Southern Medical Meeting.....	
	4.85
Nov. 29—Voucher Check No. 48.....	\$100.00
J. F. BLACKERBY, Louisville,	
To November services rendered Committee on Public Policy.	
Nov. 29—Voucher Check No. 49.....	\$250.00
FAUREST & FAUREST, Attorneys, Elizabethtown,	
To Attorneys' fees in case Wm. Higgins vs. J. V. Prewitt, M. D.	
Nov. 29—Voucher Check No. 50.....	\$708.96
MASTER RE-ORTING CO., New York,	
To reporting annual convention of the Kentucky State Medical Association, Bowling	
Green, September 15-18, 1930:	
House of Delegates.....	159.80
General Sessions and Public Meeting.....	22.95
Scientific Sessions.....	290.60
Surgical Sessions.....	103.70
Postage.....	.91
Traveling expense of 2 persons.....	127.00
	<u>708.96</u>
Nov. 29—Voucher Check No. 51.....	\$1.80
THE ART SHOP, Louisville,	
To 2 frames.	
Nov. 29—Voucher Check No. 52.....	\$3.40
BUSH-KREBS CO., Louisville,	
To 1 cut.	
Nov. 29—Voucher Check No. 53.....	\$12.00
FRANKLIN PRINTING CO., Louisville,	
To 600 Programs, for McDowell Day.	
Nov. 29—Voucher Check No. 54.....	\$1.00
LOUISVILLE POSTMASTER,	
To postage.	
Nov. 29—Voucher Check No. 55.....	\$30.00
CUSICK, Louisville,	
To 50 photos, "McDowell Day."	
Nov. 29—Voucher Check No. 56.....	\$578.00
TIMES-JOURNAL PUBLISHING CO., Bowling Green,	
To December Issue, 2425 92 P.....	564.40
To December Envelopes.....	15.00
To Printing Envelopes.....	2.30
To 30 Changes.....	6.00
To 27800 Ems. set 6 pt.....	27.80
	<u>615.50</u>
Less Credit not deducted on Check No. 21.....	37.50
	578.00
Nov. 29—Voucher Check No. 57.....	\$26.00

TIMES-JOURNAL PUBLISHING CO., Bowling Green,		
To 500 Letterheads and Envs., Chairman of Council.....	6.50	
To 500 Letterheads and Envs., Drake.....	6.50	
To 500 Letterheads and Envs., H. D. Abel.....	6.50	
To 500 Letterheads and Envs., S. B. Marks.....	6.50	
	<u>26.00</u>	
Nov. 29—Voucher Check No. 58.....		\$30.00
MRS. NELLIE M. MYER, Louisville,		
To expense for McDowell Day.		
Nov. 29—Voucher Check No. 59.....		\$10.00
MARCELLA UHL, Louisville,		
To expense McDowell Day.		
Nov. 29—Voucher Check No. 60.....		\$92.77
C. H. NIEHAUS, Grantwood N. J.,		
To expense for McDowell Day.		
Dec. 23—Voucher Check No. 61.....		\$150.00
A. T. McCORMACK, M. D., Louisville,		
To December salary, Secretary.		
Dec. 23—Voucher Check No. 62.....		\$100.00
L. H. SOUTH, M. D., Louisville,		
To December salary, Business Manager.		
Dec. 23—Voucher Check No. 63.....		\$100.00
J. F. BLACKERBY, Louisville,		
To December services rendered Committee on Public Policy.		
Dec. 23—Voucher Check No. 64.....		\$75.00
ELVA GRANT, Louisville,		
To December salary, Bookkeeper.		
Dec. 23—Voucher Check No. 65.....		\$50.00
CLARENCE NEIGHBORS, Postmaster, Bowling Green,		
To stamps for Journal.		
Dec. 23—Voucher Check No. 66.....		\$22.08
BUSH-KREGS CO., Louisville,		
To 6 cuts for Journal.		
Dec. 23—Voucher Check No. 67.....		\$2.50
LEXINGTON HERALD CO., Lexington,		
To 100 extra copies, McDowell Day.		
Dec. 23—Voucher Check No. 68.....		\$350.00
TIMES-JOURNAL PUBLISHING CO., Bowling Green,		
To account of January issue.		
Dec. 23—Voucher Check No. 69.....		\$150.00
FRED PORCHT, Attorney, Louisville,		
To legal services, July 1, 1930-Jan. 1, 1931.		
Jan. 31—Voucher Check No. 70.....		\$172.75
A. T. McCORMACK, M. D., Louisville,		
To January salary, Secretary.....	150.00	
To expense of Council Luncheon Meeting.....	<u>22.75</u>	
Jan. 31—Voucher Check No. 71.....		\$100.00
L. H. SOUTH, M. D., Louisville,		
To January salary, Business Manager.		
Jan. 31—Voucher Check No. 72.....		\$100.00
J. F. BLACKERBY, Louisville,		
To January services rendered Committee on Public Policy.		
Jan. 31—Voucher Check No. 73.....		\$75.00
ELVA GRANT, Louisville,		
To January salary, Bookkeeper.		
Jan. 31—Voucher Check No. 74.....		\$5.02
BUSH-KREBS CO., Louisville,		
To 1 cut for Journal.		
Jan. 31—Voucher Check No. 75.....		\$5.00
THE LOUIS LeCOMPTE CO., Frankfort,		
To rental of 5 doz. chairs for McDowell Day.		
Jan. 31—Voucher Check No. 76.....		\$200.00
H. C. CLAY, Attorney, Lexington,		
To attorney fee in case of A. J. Ball vs. H. V. Pennington, M. D.		
Jan. 31—Voucher Check No. 77.....		\$14.76
FLAX MFG. CO., Dayton, Ohio,		
To 5 boxes Typewriter Carbon Paper and Ribbons.		
Jan. 31—Voucher Check No. 78.....		\$8.50
MEFFERT EQUIPMENT CO., Louisville,		
To 1 M Ruled Record Cards.		
Jan. 31—Voucher Check No. 79.....		\$173.60
TIMES-JOURNAL PUBLISHING CO., Bowling Green,		
To 2375 96 Page January Issue.....	531.80	
To Inserts and Scoring.....	8.50	
To 30 Changes.....	6.00	
To Envelopes.....	15.00	
To Printing Envelopes.....	<u>2.30</u>	
	563.60	
Less Check No. 69.....	<u>350.00</u>	
	213.60	
Less by Errors and bad printing.....	<u>40.00</u>	
Feb. 15—Voucher Check No. 80.....		\$250.00
JAMES BLACKERBY, Louisville,		
To loan from Student Loan Fund to be used for Medical Education.		
Feb. 28—Voucher Check No. 81.....		\$150.00
A. T. McCORMACK, M. D., Louisville,		
To February salary, Secretary.		
Feb. 28—Voucher Check No. 82.....		\$119.00
L. H. SOUTH, M. D., Louisville,		
To February salary, Business Manager.....	100.00	
To expense to Bowling Green and return, 12-20-30.....	10.00	
To expense to Harrodsburg and return, 11-14-30.....	3.50	
To expense to Danville and return.....	<u>5.50</u>	
	119.00	
Feb. 28—Voucher Check No. 83.....		\$100.00
J. F. BLACKERBY, Louisville,		
To February services rendered Committee on Public Policy.		



Feb. 28—Voucher Check No. 84.....	ELVA GRANT, Louisville,		\$75.00
	To February salary, Bookkeeper.		
Feb. 28—Voucher Check No. 85.....	FRED FORCHT, Attorney, Louisville,		\$100.00
	To attorney fee in case of August Hill vs. H. C. T. Richmond, M. D.		
Feb. 28—Voucher Check No. 86.....	BUSH-KREBS CO., Louisville,		\$3.84
	To 1 cut.		
Feb. 28—Voucher Check No. 87.....	REMINGTON AND BUSINESS SERVICE, Louisville,		\$4.70
	To repair on typewriter.		
Feb. 28—Voucher Check No. 88.....	STATE JOURNAL CO., Frankfort,		\$20.24
	To 8 M Envelopes and 8 M Letterheads used for McDowell Day.		
Feb. 28—Voucher Check No. 89.....	UNIVERSITY OF KENTUCKY, Lexington,		\$170.00
	To 2 M Bulletins on Medical Service in Ky. @ \$85.00 per M		
Feb. 28—Voucher Check No. 90.....	TIMES-JOURNAL PUBLISHING CO., Bowling Green,		\$33.29
	To phone message.....	2.40	
	To stamps for Journal.....	.20	
	To express on Martin, Vance and Greenwell stationery ..	1.19	3.79
	To 500 reprints, Blackerby.....		14.50
	To 300 Letterheads and Envs., Councilor, 11th District .....	5.00	
	To 300 Letterheads and Envs., Councilor, 4th District .....	5.00	
	To 300 Letterheads and Envs., Councilor, 10 District .....	5.00	15.00
			33.29
Feb. 28—Voucher Check No. 91.....	TIMES JOURNAL PUBLISHING CO., Bowling Green,		\$522.04
	To 2400 88 Page February Issue.....	497.04	
	To 2 sets Inserts.....	17.00	
	To 40 Changes .....	8.00	
			522.04
Feb. 28—Voucher Check No. 92.....	CLARENCE NEIGHBORS, Bowling Green,		\$50.00
	To postage on Journals.		
Mar. 31—Voucher Check No. 93.....	A. T. McCORMACK, M. D., Louisville,		\$150.00
	To March salary, Secretary.		
Mar. 31—Voucher Check No. 94.....	L. H. SOUTH, M. D., Louisville,		\$100.00
	To March salary, Business Manager		
Mar. 31—Voucher Check No. 95.....	J. F. BLACKERBY, Louisville,		\$100.00
	To March services rendered Committee on Public Policy.		
Mar. 31—Voucher Check No. 96.....	ELVA GRANT, Louisville,		\$75.00
	To March salary, Bookkeeper.		
Mar. 31—Voucher Check No. 97.....	KENTUCKY BOOK MFG. CO., Louisville,		\$1.75
	To binding Journals for 1930.		
Mar. 31—Voucher Check No. 98.....	HYGIENE DEPT., UNIVERSITY OF KENTUCKY, Lexington,		\$51.33
	To postage on 1,711 Bulletins @ 3c each.		
Mar. 31—Voucher Check No. 99.....	STEPHENS & STEELY, Williamsburg,		\$25.00
	To attorneys' fees in case J. W. Brown vs. S. S. Brown, M. D.		
Mar. 31—Voucher Check No. 100.....	BUSH-KREBS CO., Louisville,		\$3.84
	To 1 cut.		
Mar. 31—Voucher Check No. 101.....	KOEHLER STAMP & STENCIL CO., Louisville,		\$3.50
	To 1 signature stamp and cut.		
Mar. 31—Voucher Check No. 102.....	TIMES-JOURNAL PUBLISHING CO., Bowling Green,		\$523.00
	To 2400 80 Page March Issue.....	506.95	
	To Inserts and Scoring .....	8.50	
	To Envelopes .....	15.00	
	To Printing Envelopes .....	2.30	
	To 35 Changes .....	7.00	
			539.75
	Less by 67 errors @ 25c each.....		16.75
Mar. 31—Voucher Check No. 103.....	VIRGIL E. SIMPSON, M. D., Louisville,		\$102.34
	To trip to Washington, D. C., 5-10-15-30, attending U. S. Pharmacopoea Convention as a delegate of the Kentucky State Medical Association.		
Mar. 31—Voucher Check No. 104.....	TIMES-JOURNAL PUBLISHING CO., Bowling Green,		\$30.50
	To 5 M Letterheads, Secretary.....	25.00	
	To 85 Typewritten Letterheads for W. P. Drake, M. D.....	5.50	
Mar. 31—Voucher Check No. 105.....	TIMES-JOURNAL PUBLISHING CO., Bowling Green,		\$528.90
	To 2400 80 Page April Issue.....	486.60	
	To 2 sets Inserts and Scoring.....	17.00	
	To Envelopes .....	15.00	
	To Printing Envelopes .....	2.30	
	To 40 Changes .....	8.00	
			528.90
Apr. 30—Voucher Check No. 106.....	A. T. McCORMACK, M. D., Louisville,		\$150.00
	To April salary, Secretary.		
Apr. 30—Voucher Check No. 107.....	L. H. SOUTH, M. D., Louisville,		\$100.00
	To April salary, Business Manager.		

Apr. 30—Voucher Check No. 108.....	\$100.00
J. F. BLACKERBY, Louisville, To April services rendered Committee on Public Policy.	
Apr. 30—Voucher Check No. 109.....	\$80.50
ELVA GRANT, Louisville, To April salary, Bookkeeper.....	75.00
To expense on 2 trips to Lexington and return for Miss Sullivan and self in behalf of State Meeting.....	5.50
Apr. 30—Voucher Check No. 110.....	\$30.00
LOUISVILLE POSTMASTER, To postage on Journals	
May 29—Voucher Check No. 111.....	\$150.00
A. T. McCORMACK, M. D., Louisville, To May salary, Secretary.	
May 29—Voucher Check No. 112.....	\$100.00
L. H. SOUTH, M. D., Louisville, To May salary, Business Manager.	
May 29—Voucher Check No. 113.....	\$100.00
J. F. BLACKERBY, Louisville, To May services rendered Committee on Public Policy.	
May 29—Voucher Check No. 114.....	\$75.00
ELVA GRANT, Louisville, To May salary, Bookkeeper.	
May 29—Voucher Check No. 115.....	\$9.20
BUSH-KREBS CO., Louisville, To 2 cuts for Journal.	
May 29—Voucher Check No. 116.....	\$6.50
TIMES-JOURNAL PUBLISHING CO., Bowling Green, To 500 Letterheads and 500 Envelopes, Third District Medical Society—Dr. Blackburn.	
May 29—Voucher Check No. 117.....	\$540.68
TIMES-JOURNAL PUBLISHING CO., Bowling Green, To 2200 88 Page May Issue.....	507.40
To Insert and Scoring.....	8.50
To Envelopes.....	15.00
To Printing Envelopes.....	2.30
To 30 Changes.....	6.00
To Telegram.....	1.32
To Stamps.....	.16
	540.68
May 29—Voucher Check No. 118.....	\$50.00
CLARENCE NEIGHORS, M. P., Bowling Green, To postage on Journals.	
June 30—Voucher Check No. 119.....	\$276.80
A. T. McCORMACK, M. D., Louisville, To June salary, Secretary.....	150.00
To expense to A. M. A. Meeting.....	126.80
June 30—Voucher Check No. 120.....	\$100.00
L. H. SOUTH, M. D., Louisville, To June salary, Business Manager.	
June 30—Voucher Check No. 121.....	\$100.00
J. F. BLACKERBY, Louisville, To June services rendered Committee on Public Policy.	
June 30—Voucher Check No. 122.....	\$75.00
ELVA GRANT, Louisville, To June salary, Bookkeeper.	
June 30—Voucher Check No. 123.....	\$10.88
BUSH-KREBS CO., Louisville, To 3 Cuts for Journal.	
June 30—Voucher Check No. 124.....	\$6.65
REBECCA RUNNER CASSELL, Louisville, To expense during Post-Graduate School.	
June 30—Voucher Check No. 125.....	\$150.00
HUFFAKER, HOGAN & BERRY, Attorneys, Louisville, To services rendered January through June, 1931.	
June 30—Voucher Check No. 126.....	\$43.00
TIMES-JOURNAL PUBLISHING CO., Bowling Green, To 250 Letterheads and 250 Envs., Councilor Third District.....	4.50
To 200 4-page Programs Eye, Ear, Nose and Throat Section.....	7.50
To 2500 4-Page Programs Post-Graduate Course.....	31.00
	43.00
June 30—Voucher Check No. 127.....	\$583.14
TIMES JOURNAL PUBLISHING CO., Bowling Green, To 2250 84 Page June Issue.....	540.68
To 2 sets Inserts and Scoring.....	17.00
To 60 Changes.....	8.00
To Envelopes.....	15.00
To Printing Envelopes.....	2.30
To Postage on Journals.....	.16
	583.14
June 30—Voucher Check No. 128.....	\$531.80
TIMES-JOURNAL PUBLISHING CO., Bowling Green, To 2300 84 Page July Issue.....	500.20
To Inserts and Scoring.....	8.50
To 30 Changes.....	6.00
To Envelopes.....	15.00
To Printing Envelopes.....	2.30
To 15,785 Ems Set to Tabulate.....	16.00
	548.00
Less Telephone Call.....	1.20
Less April Envelopes paid for but not received.....	15.00
	16.20
	531.80



July 31—Voucher Check No. 129—	\$170.00
A. T. McCORMACK, M. D., Louisville,	
To July salary, Secretary.....	150.00
To July expense .....	20.00
July 31—Voucher Check No. 130.....	\$100.00
L. H. SOUTH, M. D., Louisville,	
To July salary, Business Manager .....	
July 31—Voucher Check No. 131.....	\$100.00
J. F. BLACKERBY, Louisville,	
To July services rendered Committee on Public Policy .....	
1931	
July 31—Voucher Check No. 132.....	\$75.00
ELVA GRANT, Louisville,	
To July salary, Bookkeeper.....	
July 31—Voucher Check No. 133.....	\$350.00
TIMES-JOURNAL PUBLISHING CO., Bowling Green,	
To account of August Journal.....	
Aug. 31—Voucher Check No. 134.....	\$150.00
A. T. McCORMACK, M. D., Louisville,	
To August salary, Secretary.....	
Aug. 31—Voucher Check No. 135.....	\$100.00
L. H. SOUTH, M. D., Louisville,	
To August salary, Business Manager.....	
Aug. 31—Voucher Check No. 136.....	\$100.00
J. F. BLACKERBY, Louisville,	
To August services rendered Committee on Public Policy.....	
Aug. 31—Voucher Check No. 137.....	\$75.00
ELVA GRANT, Louisville,	
To August salary, Bookkeeper.....	
Aug. 31—Voucher Check No. 138.....	\$50.00
CLARENCE NEIGHBORS, M. P., Bowling Green,	
To postage on Journals.....	
Aug. 31—Voucher Check No. 139.....	\$350.00
TIMES-JOURNAL PUBLISHING CO., Bowling Green,	
To account of September Journal.....	
Aug. 31—Voucher Check No. 140.....	\$18.81
WOMAN'S AUXILIARY, Kentucky State Medical Ass'n, Louisville,	
To 25% Commission on Ads amounting to \$75.25.....	

TOTAL.....\$16,658.47

WOMAN'S AUXILIARY TO THE KENTUCKY STATE MEDICAL ASSOCIATION  
EXHIBIT "A"

RECEIPTS			
Gross dues received .....	\$237.50		
Less Refunds .....	9.00		
Less contribution to Jane Todd Crawford Memorial Fund .....	10.00	19.00	218.50
Less American Medical Association Auxiliary dues .....			104.25
Net State dues received.....			\$114.25
Contribution from Perry County Auxiliary.....			5.00
Hygeia, American Medical Association, Commission on subscriptions .....			3.25
Kentucky Medical Journal, commission on advertisements..			32.69
Total Net Receipts for 1930-1931.....			\$155.19
DISBURSEMENTS			
President's expense, Bowling Green State Meeting.....		1.50	
Printing .....		23.21	
Postage, etc. ....		3.00	
Government tax .....		.03	
Total Disbursements .....			27.74
Gross Gain on 1930-31.....			\$127.45
Less 33% of deposit on hand Nov. 15, 1930, in National Bank of Kentucky.....		23.99	
Less check No. 7 to be covered.....		.50	23.49
Net Gain on 1930-31 operation.....			\$103.96
Balance on hand August 1, 1930, National Bank of Kentucky, Fourth and Chestnut Streets, Louisville.....			24.01
Balance on hand August 1, 1931, (Checking Account) Liberty Bank & Trust Company, Louisville.....			\$ 127.97
Agreeing with Treasurer's report			
SAVINGS ACCOUNT			
The Louisville Trust Company, Louisville.....			102.56
(Bank Closed)			
Balance, First National Bank, account of Jane Todd Crawford Memorial Fund .....			\$512.61

EXHIBIT "B"  
Jane Todd Crawford Memorial Fund 1930-1931

Balance Forward, August 1, 1930.....	\$320.84
1930	
July 25 McCracken County, per Mrs. O. R. Kidd.....	\$4.00
July 25 Mrs. Mary D. Moore, Nashville, Tenn.....	1.00
Sept. 1 Madison County Auxiliary, per Mrs. John B. Floyd.....	10.40
Sept. 4 Mrs. A. J. Grief, New York City.....	10.00
Sept. 10 Campbell-Kenton Co. Auxiliary, per Mrs. N. A. Jett.....	10.00
Sept. 16 Mrs. J. W. Blake, Louisville.....	1.00
Sept. 16 Mrs. I. H. Browne, Winchester.....	1.00
Sept. 18 Mrs. M. H. Moon, Louisville.....	10.00
Sept. 18 Mrs. P. H. Stewart, Paducah.....	1.00
Sept. 18 Mrs. C. M. Gower, State at Large.....	1.00
Sept. 18 Mrs. Lula Parks, Irvington.....	1.00
Oct. 27 Bell County Auxiliary, through Mrs. C. B. Stacy.....	6.00
Nov. 7 Business and Professional Woman's Club of Murray, Kentucky, per Mrs. Erie Keys.....	5.00
Dec. 1 Miss Wilma P. Hamsher, Winona Lake, Ind.....	1.00
Dec. 1 Mrs. C. B. Nordeman, Louisville.....	1.00

Dec. 1 Mrs. John P. Haswel, Louisville.....	1.00
1931	
Feb. 8 Southern Medical Association.....	50.00
Feb. 12 Mrs. Lena H. Carlton, Louisville.....	1.00
March 26 Perry County Auxiliary, per Mrs. J. M. Ray, Sec'y.....	5.50
May 23 Jefferson County Auxiliary, Mrs. C. G. Arnold, Treas.....	44.20
May 27 Mrs. William H. Emrich, Jefferson County.....	2.00
May 27 Mrs. Daisy H. Meyers, Jefferson County.....	1.00
June 1 Mrs. Frank T. Fort, Jefferson County.....	1.00
June 1 Mrs. Walter Hume, Jefferson County.....	1.00
June 1 Mrs. William C. White, Jefferson County.....	.75
June 1 Mrs. Charles McBride, Jefferson County.....	.75
June 26 McCracken County, per Mrs. O. R. Kidd.....	9.00

Receipts for year.....		\$180.60
Feb 12 Interest on deposit.....	\$5.16	
July 1 Interest on deposit.....	<u>6.52</u>	<b>11.68</b>
Less Government Tax.....	.51	11.17
Total Net Receipts for Year.....		191 77
Total Receipts to date, agreeing with bank balance .		<u>\$512.61</u>

EXHIBIT "C"  
Paid Memberships to July 1, 1930

	1930	1931	1932
Allen .....	5		
Ballard .....	4	3	
Bell .....	7		
Breckenridge .....	8		
Calloway .....	13	3	
Campbell-Kenton .....	12	18	
Hardin .....	19	9	
Harlan .....	13		
Jefferson .....	162	153	2
Letcher .....	10	8	
McCracken (Disbanded June 1931).....	12	2	
Marshall .....	5	3	
Oldham (Disbanded May, 1931).....	4		
Perry .....	26	24	
Warren .....	19		
Whitley .....	7	7	
State at Large .....	9	7	
Totals .....	<u>335</u>	<u>239</u>	<u>2</u>

EXHIBIT D''

Detailed Statement of Receipts and Disbursements of Mrs. W. C. Dugan, Treasurer, Woman's Auxiliary, Kentucky State Medical Association, from September 1, 1930, to September 1, 1931.

	Receipts	Disbursements
July 1 Balance Forward .....	\$24.01	
July 1 Dues, Marshall County, 5 members.....	2.50	
July 1 Dues, Jefferson County, 2 members.....	1.00	
July 8 Dues, State at Large, 2 members.....	2.00	
July 8 Dues, Harlan County, 13 members.....	6.50	
Aug. 1 Dues, Calloway County, 6 members.....	3.00	
Aug. 12 Dues, Jefferson County, 2 members.....	1.00	
Aug. 20 Dues, Ballard County, 4 members.....	2.00	
Sept. 2 Dues, Jefferson County, 13 members.....	8.50	
(including dues for 4 members 1929)		
Sept. 10 Dues, Campbell-Kenton County, 24 members, and donation.....	22.00	
Sept. 10 Check No. 8, Campbell-Kenton County, credit for Jane Todd Crawford Fund.....		10.00
Sept. 13 Dues, Letcher County 10 members, and over-payment.....	10.00	
Sept. 13 Check No. 9, Letcher County, Mrs. Bach rebate on dues.....		5.00
Sept. 20 Dues, Jefferson County, 10 members, (including dues for 1 member 1928 and 2 members 1929).....	6.50	
Sept. 20 Dues, Warren County, 19 members.....	9.50	
Sept. 20 Commission on ads from Ky. State Medical Journal.....	32.69	
Sept. 20 Dues, State at Large, 7 members.....	7.00	
Sept. 20 Cash for room, National President.....		1.50
Sept. 20 Dues, Jefferson County, 1 member and over-payment.....	1.00	
Sept. 20 Check No. 6, Mrs. Arnold, rebate on dues.....		.50
Sept. 20 Dues, Hardin County, 1 member, and overpayment.....	1.00	
Sept. 20 Check No. 7, Mrs. Layman, rebate on dues.....		.50
Sept. 20 Dues, McCracken County, 1 member, and over-payment.....	1.00	
Sept. 20 Check No. 10, Mrs. Reddick, rebate on dues.....		.50
Sept. 27 Dues, Allen County, 5 members, and overpayment.....	5.00	
Sept. 27 Check No. 11, Mrs. Meredith, rebate on dues.....		2.50
Oct. 1 Dues, Jefferson County, 2 members.....	1.00	
July 1 Government tax.....		.03
Oct 16 Check No. 12, Mrs. Adair, National Treasurer, dues to A. M. A.....		51.00
Oct 22 Dues, Bell County, 7 members.....	3.50	
Oct. 30 Dues, McCracken County, 1 member.....	.50	
Nov. 1 Check No. 13, Young Printing Company, of Paducah, for stationery.....		13.48
Nov. 1 Jefferson County, dues, 3 members.....	1.50	
Nov. 1 Dues, Jefferson County, 1 member .....	1.00	
(including dues for 1929)		
Nov. 7 Dues, Jefferson County, 6 members.....	3.50	
(including dues for one member 1929)		
Total Receipts .....	<u>157.20</u>	
Total Disbursements.....		<u>85.01</u>
Nov. 15 Balance on hand, National Bank of Kentucky.....	72.69	
Less Check No. 7, outstanding.....	<u>.50</u>	<u>72.19</u>
		157.20



## LIBERTY BANK AND TRUST COMPANY

1930		
Dec. 1	Dues, Jefferson County, 6 members.....	5.00
	(including dues for 1 member 1928, 2 for 1929 and for 1931)	
1931		
Jan. 5	Dues, Jefferson County, 1 member for 1928, 1929, 1930, 1931, and 1932.....	2.50
Jan. 5	Dues, Jefferson County, 1 member for 1929 and 1930.....	1.00
Jan. 20	Dues, Calloway County, 3 members.....	1.50
Jan. 20	Express on receipts books (paid in cash).....	.59
Jan. 26	Dues, Jefferson County, 1 member.....	.50
Jan. 26	Wrappers for receipt books (paid in cash).....	.30
Feb. 11	Dues, Jefferson County, 1 member.....	.50
Feb. 11	Postage (paid in cash).....	.78
Feb. 15	Dues, Jefferson County, 1 member for 1929 and 1930.....	1.00
Feb. 23	Commission on Hygeia.....	2.00
March 9	Dues, Jefferson County, 66 members.....	33.00
March 9	Postage (paid in cash).....	.33
March 18	Dues, Jefferson County, 20 members.....	10.00
March 25	Dues, Calloway County, 2 members.....	1.00
March 25	Dues, Ballard County, 3 members.....	1.50
March 25	Dues, Marshall County, 8 members.....	4.00
March 26	Dues, Perry County, 23 members.....	11.50
March 26	Donation, Perry County.....	5.00
March 30	Dues, Letcher County, 8 members.....	4.00
March 30	Check No. 1, Mrs. Adair, National Treasurer, dues to A. M. A.....	35.75
April 6	Dues, Whitley County, 7 members.....	3.50
April 6	Dues, Jefferson County, 27 members.....	13.50
April 16	Dues, Perry County, 1 member.....	.50
April 29	Dues, Hardin County, 9 members.....	4.50
April 29	Check from defunct bank.....	48.70
May 12	Dues, Jefferson County, 26 members.....	13.00
May 12	Check No. 2, Young Printing Company.....	2.50
May 12	Check No. 3, Mrs. Adair, National Treasurer, dues to A. M. A.....	17.50
May 28	Dues, Jefferson County, 10 members.....	5.50
	(including one for 2 years)	
June 1	Dues, McCracken County, 2 members.....	1.00
June 5	Dues, Warren County, 19 members.....	9.50
June 5	Check No. 4, Young Printing Company.....	7.23
June 9	Dues, Campbell-Kenton County, 18 members.....	9.00
June 17	Hygeia Commission.....	1.25
June 26	Check No. 5, Mrs. O. R. Kidd, for stamps.....	1.00
	Total Receipts.....	193.95
	Total Disbursements.....	65.98
Balance	on hand, Liberty Bank & Trust Co., Louisville..	127.97
		\$193.95
		\$193.95

## ORIGINAL ARTICLES

THE TREATMENT OF MORPHINE  
ADDICTION BY BLISTER FLUID  
INJECTION\*

W. D. REDDISH, M. D.

Lexington.

Autotherapy in one form or another has been used for a great many years in the treatment of various diseases. During the past few years a renewed interest has been shown in a form of autotherapy known as auto-serotherapy by a group of European physicians, one of whom developed a rather unique method for treating certain diseases, many of specific microbic origin. Modinos (1), Director of the European Hospital in Alexandria, is the outstanding exponent of this form of therapy and during the past twenty years has devoted considerable time to special studies in this field. He has, in fact, established the extraordinary value of autoserotherapy in the treatment of certain infectious and non-infectious diseases, by a method which may be termed "blister serum injection."

Autotherapy has been used by Modinos and others in the treatment of such diseases as undulant fever, typhoid fever, asthma, rheumatic fever, pleurisy, gonorrhea and exanthematous typhus. More recently Modinos (2) has extended his use of this form of therapy to the treatment of cases of drug addiction.

## BLISTER FLUID INJECTION METHOD

Modinos found that blister fluid contains endothelial cells, albuminoid substances, hydrocarbons, lipoids, oxydases and lipases. The most significant finding he considered to be the high leucocyte count, 20,000 to 80,000. However, as Roux, Vaillard and Bordet have pointed out, antibodies in the blood stream readily pass into the vesicle serum. It is the presence of these antibodies in the blister fluid which give it the therapeutic properties demonstrated by the authors quoted above.

The method of employing the vesicle serum injection treatment developed by Modinos is essentially as follows:

A plaster eight square centimeters in size is applied on some region of the body, preferably the lower part of the chest in front; twelve to fourteen hours later, or until sufficient liquid has been formed, the blister fluid is drawn off by means of a syringe and injected immediately under the skin near by the site of the blister. The injection is not followed by any reaction, or at most but a slight increase in temperature. In the same

manner a second vesicle is made after four days and again a third.

At the same time the dose of the particular drug being used by the patient is reduced as follows: One-fourth the habitual dose the first twenty-four hours, a fifth the second day and one-eighth the third day and so on up to complete withdrawal.

At the time I began my studies on the use of the vesicle serum injection of treating drug addicts, I was not aware of the exact method employed by Modinos. Only a meagre statement in the Paris letter in the J. A. M. A., January 4, 1930, (3) was available at the time. The following procedure was employed in treating a series of cases, the method differing somewhat from that used by Modinos. The method used in this series of cases is as follows: A plaster, approximately 6 centimeters square was applied on the chest. When the blister was formed, which usually occurred within twelve hours, the fluid was withdrawn with a syringe and reinjected subcutaneously immediately. This was repeated once or twice a day, according to the yield of the blister. If the yield was approximately 5 c. c. or less, two injections were made daily, but if the yield was approximately 6 to 7 c. c. or more, only one injection was given daily. On the first day of treatment the patient usually received one grain of morphine regardless of his habitual requirements. On the second and third days this was reduced to one-fourth grain. It was rarely necessary to administer morphine after the third day.

## CASES

A series of ten cases of morphine addiction was selected for this study. These cases ranged in age from 35 to 56 years. The period of addiction extended from 3 to 23 years. The amount of morphine habitually used daily by all cases averaged approximately 6 to 8 grains. Nine of these cases were treated under strict hospital supervision. The method outlined above was applied to each case, the number of blisters employed ranging from four to six. The time required for complete withdrawal ranged from three to five days. In all cases the end point was sharp and was determined by a complete absence of craving. After complete withdrawal, the patients expressed no further desire for the drug even when it was offered to them. A summary of these cases is given in Table 1. One typical case will be reported in some detail:

## CASE

J. H., age 42. Has been taking morphine for 23 years. He said his daily requirement was from 8 to 10 grains intravenously.

August 1st, 8 A. M. Morphine grs.  $\frac{1}{2}$ —10 A. M. 4 c. c. blister fluid injected. 7 P. M. 8 c. c. blister fluid injected. Patient was

\*Read before the Kentucky State Medical Association at Bowling Green, September 15-18, 1930.



a little nervous and was given a luminal tablet.

August 2nd, 9 A. M. Patient states that he was awakened by the escaping blister fluid. A small bleb yielded 3 c. c. which was injected. Morphine gr.  $\frac{1}{4}$  gr. was given and another plaster applied. 8 P. M.— 6 c. c. fluid injected.

August 4th. Condition good, slept well last night. He refused morphine when it was offered to him. His appetite returned as suddenly as the craving left. The luminal was discontinued on the fifth day. As long as he remained under observation he slept well, ate ravenously and since the third day of treatment, did not ask for morphine.

TABLE NO. 1

Cases	Age	Addiction (years)	No. of Blisters Employed	Withdrawal Period (da s)
1	42	23	4	3
2	39	7	4	4
3	38	16	4	4
4	40	21	6	3
5	35	7	4	4
6	54	34	5	3
7	56	3	5	3
8	45	5	5	5
9	35	10	5	4
10	46	8	5	5

## BIBLIOGRAPHY

1. Modinos, un decennio di pratica ospedaliera. Imp. Moures, Alexandria, 1908.
2. Modinos. Quand et comment doit-on employer l'Autoserotherapie. Jr. des Patriciens, 1922.
3. Modinos. Le Serum du Vesicatoire dans le traitement et al prophylaxie des maladies infectieuses. Communication presentee au Congres International de Medicine Tropicale et Hygiene Au Caire, 1928.
4. Archives d'Ophthalmologie. May 1913.
5. Bulletin de Therapeutique. pg. 332. 1908.
6. Traitement par l'autoserotherapie des effections aiguës de l'œil. Theses de Paris, 1925.
7. Ch. Finck. La Goutte, 1922.
8. Mouriquant. (Quoted from Modinos - 3).
9. Modinos. La Guérison des Toxicomanes par le serum du vesicatoire. Societe de Medecine et d'Hygiene Tropicales. Jan. 1930.
10. Quoted by Modinos.

## DISCUSSION

**W. E. Gardner, Louisville:** Dr. Reddish very kindly asked me to open the discussion on this paper, and sent me a copy of the paper, which I read with great deal of interest. I feel that any method of assistance in the rather rapid withdrawal of the drug in the treatment of morphine addiction is worthy of consideration. Those of us who have had some experience with patients with morphine addiction, both in private practice and in public hospitals, by the old gradual reduction method, know how tedious these cases are to handle and what great pain they suffer as the amount of drug becomes relatively small toward the end of the gradual reduction method. For this reason, at the City Hospital in Louisville for a number of years we have been interested in trying out various methods of rather rapid withdrawal of drugs as contrasted with the old method of gradual reduction more generally practiced in private work.

A number of years ago we undertook the Lambert-Townes treatment, a combination of xantoxylin, hyoscyamus and tincture of belladonna, which was recommended at the Lam-

bert-Townes Hospital in New York, giving rather rapidly increasing doses, and at the same time drastic purgation every ten, twelve or fifteen hours. It was found by this method that patients could be withdrawn from the morphine within a period of two or three days, and that they suffered very little pain, very little withdrawal symptoms. They would sometimes be free of pain for a week or ten days, or two weeks, but we found if they were kept on the ward for a period longer than ten days or weeks, there began to be a certain restlessness and nervousness, and sometimes a craving again for the drug, which did not appear within the first few days after withdrawal.

Later on in the City Hospital we began using a method of quick withdrawal and use of hyoscyne, alone, recommended by Forsheimer in his book a number of years ago, and it was found by giving rather large doses of hyoscyne over a period of two or three days, the drug could be taken away rather rapidly in small doses and that the patients got by without any immediate after effects of pain. The objection to this method is that sometimes the patients become mildly delirious from the use of the hyoscyne. They usually object to this form of treatment more or less, and it has never been a very practical method to use in private practice.

Dr. Reddish now comes with a paper of extreme interest, and I want to congratulate him that he has so promptly followed up the work of Modinos which came out in the Paris letter of the American Medical Association only last January, in which Modinos had accidentally discovered the satisfactory result of the treatment of morphine addiction by the re-injection method. He has had, of course, a larger series of cases of his own, and I think Dr. Reddish has been justified in undertaking this experimental work here in our own state. His results seem convincing.

As to just how this method works, we of course do not know. At any rate, the results seem to justify the procedure. I shall certainly be interested in finding out what the results are in my work in the City Hospital during this coming year.

I think one must be somewhat cautious in the use of this treatment in private practice, inasmuch as there is some danger of infection unless one is very careful about the formation of the blister. The patients normally are unstable and inclined to be hypercritical, and in the event of complications following the re-injection method might have a comeback which would be somewhat embarrassing.

Dr. Reddish has had the advantage of trying this out in the State Hospital in Lexington.

We know, as far as the usual morphine addict is concerned, that he is an unstable individual. Of course, there are a certain percentage of cases in which, if the patient is successfully

withdrawn from the drug and his physical resistance is properly supported, he often goes for an indefinite period and sometimes does not have a recurrence of his habit during life. There are some outstanding cases of which we know. In other words, these cases might be referred to as accidental addicts.

In the majority of cases the patient might be placed in the constitutional psychopathic class. He is an unhappy individual without artificial support. Many of these have that artificial support in alcohol, some in drugs. Many of them are more normal, perhaps, mentally with a moderate amount of artificial support than without any sort of drugs. If you remove the drug or alcohol from this class of individuals, they are still unstable, unhappy; they are unsuccessful, unproductive sort of individuals, and there is where the outlook becomes so discouraging so far as the follow-up is concerned. It will be interesting, in the establishment of a narcotic farm in Lexington in a short time, to see what effects may be obtained by keeping such individuals, after they have been withdrawn from the drug, under routine and supervision over a period of a great many months, perhaps two or three years or longer. In private practice we are unable to keep in touch with the patient long enough to follow up, caution him here, protect him there, and have him follow an environmental existence which would be entirely wholesome.

**Edward Davenport**, Lexington: I want to say a few things in regard to the blister treatment that the essayist himself has been using in Lexington. We started in with this treatment knowing very little about the dose of the serum to use so we had to experiment along this line. We have treated quite a few cases together and came to the conclusion that 10 c. cs. twice a day would be sufficient but of course you can use more if you choose. I have treated quite a few cases with this treatment and a large number with the reduction method. I have given the serum treatment to a number that I had treated formerly with the reduction treatment, and they all say they suffered less and got along better than they did with the reduction method and it is a much quicker cure. As a rule, their appetite is good from the start, they gain in weight and rest well and there is very little discomfort experienced by the patient during this treatment. If they are a little restless after we get them off of the drug and cannot sleep, we usually give them for about two nights, three grains of luminal soda at bedtime and they rest nicely.

According to my way of thinking and experience, this is the best treatment that we have for drug addiction at this time.

**A. McKinney**, Owensboro: I have had quite an experience as federal jail physician of Daviess County in coming in contact with these morphine addicts. It occurred, to my mind, when

Dr. Reddish was reading his paper, that if this serum that he is using in withdrawing the addict from the drug is potent in sustaining him through that suffering period and takes away the desire for the drug, it might be the proper thing to do to follow that up at periodical times for several months, possibly for six months.

I have taken a number of patients off the drug in jail. There are very few of them that you can take off in your private practice unless you have them confined; they won't stand hitched.

If this serum will take that pain away, I can't see but that it is a practical thing in our private practice.

In taking the addicts off the drug in the jail, I give them a strong cathartic and clean them out thoroughly. I don't give them any of the drug; I take them off right now, except when they get to suffering extremely. Then I give them hyoscin. I think it is the best thing that we have in the way of drugs to put them to sleep and let them sleep it off. If you let them sleep for ten to twenty-four hours under the hyoscin, they get up practically off the drug. They will suffer, and all that, but they can go along. You can take them out of the jail in three or four months; sometimes they stay in that long, and they are perfectly fat and fine. They tell you that they wouldn't be on the drug for anything in the world, and they are through with it. But in a little while they land with their gang, they haven't any stability. They have no power of resistance, and when it is presented to them they are back on it again.

I know of one fellow who went out of the Daviess County jail. He had been off the drug in jail for four months. He went to the penitentiary for a year and a day, and he came back feeling fine. He came to my office and said how well he felt, and he did look well. He is lined up with the gang again today.

This instability of the morphine addict and something in him that requires the use of a drug is something that we have got to reckon with, and if this serum produces that condition so he does not desire the drug and refuses it when it is given to him, I think that is the very thing that we ought to have, and it ought to be followed up for a year or two years, if necessary.

**William D. Reddish**, (in closing): There is only one thing I would like to say, and that is in regard to home treatment. I think that all cases of drug addiction ought to be either in a hospital or in some institution where the doctor has absolute control over the amount of morphine they are given. If you try to take an addict off and the peddler is going to be around at night and supply him with drugs, or members of his family, some of whom may be addicts or have supplies available to them, it is very unsatisfactory. It must be absolutely under control.



## GYNATRESIA, A CASE REPORT\*

WM. EDGAR FALLIS, M. D.

Louisville.

Before entering upon the report of this case, I shall endeavor to discuss the subject briefly, hoping thereby to add some points that will make the case report of further interest.

By gynatresia is meant a closure of some portion of the female genital tract. The greatest number of cases of atresia is found in the lower portion of the vaginal canal.

The condition often causes no symptoms before puberty, but when menstruation has been established it becomes of serious import since the menstrual fluid is retained in the genital tract with the subsequent distinct pathological entities; hematocolpos, hematometria and hematosalpinx, ultimately destroying the normal tissue involved—peritonitis supervening should bacterial invasion occur

There are two types of gynatresia; namely, congenital and acquired. The congenital type was formerly considered to be due to a defect in the development of some portion of the Mullerian ducts. These ducts unite at about the seventh week of embryonal life. By the end of the third month the differentiation into uterus and vagina is evident. The hymen does not appear until about the nineteenth week. The genital tract under normal circumstances is completely developed at about the fifth month.

Gynatresia may occur when the Mullerian ducts have fully united or when they have remained separate.

Brothers collected 145 cases of congenital retention;—a single genital tract was present in 80 and a double tract existed in 65. All of the well known types of uterine malformations may be associated with gynatresia, such as didelphys, biconis and biseptus in which the vagina may be single or double.

There are many observers who believe that the congenital type is really an acquired condition due to infection with inflammatory reaction and subsequent occlusion during early childhood from the frequent bathing of the parts with feces laden with bacteria.

Nagal believes that all types of gynatresia are acquired. He teaches that the congenital absence of the vagina cannot be associated with normally developed uterus, tubes and ovaries. He asserts that when the vagina is atresic in otherwise normal cases the defect is due to adhesions of the opposing vaginal surfaces which is the result of inflammation in early life or even before birth.

Veit supports Nagal's views and believes that when a hematosalpinx is present with

gynatresia the evidence is complete that there has existed some infection in the genital tract and that the condition is acquired and not congenital. The infection causes the inflammatory changes which seal the fimbriated end of the tube, permitting the development of the hematosalpinx.

The most common congenital obstruction is the imperforate hymen.

Bell's studies lead him to believe that the obstruction in this class of cases is not the hymen but an imperforation of the lower end of the vagina.

Histological examination of these obstructions shows a stratified squamous epithelial layers similar to that of the vulva on the outer surface and a columnar epithelium on the inner surface, while the hymen is covered on both surfaces by a stratified squamous epithelium.

In the majority of cases acquired gynatresia is due to an inflammatory or ulcerative process which results in adhesions between the vaginal walls, the most prominent causes being puerperal infections, lacerations; infectious diseases, such as scarlet fever and diphtheria, trauma, senile atresia and mechanical occlusions due to carcinoma.

Gynatresia produces no symptoms until the menstrual function is established and consequently is not recognized until some sequelae are present.

There is a history of the usual discomforts of menstruation without any appearance of the flow. As the condition advances to the development of hematometria and hematosalpinx a mass is observed in the lower abdomen with oftentimes a bulging at the site of the hymen.

The diagnosis in these cases is not difficult and requires only the usual amount of skill to make a careful physical examination of the patient.

Gynatresia with retention of the menstrual fluid is a serious condition. The mortality rate of these patients in 1888 was 74%. At the present time this rate has been materially reduced, yet it still has been higher than concomitant with present methods of examination and treatment. Fatal hemorrhage and shock from some ruptured portion of the genital tract, and peritonitis are some of the grave complications which occur. The retained menstrual fluid has an unusual degree of toxicity when thrown into the peritoneal cavity or absorbed by the lymphatics. This toxicity is not definitely explained.

Cases of spontaneous cure are reported after rupture has taken place into the urinary bladder, rectum or through the septum of a double uterus.

The treatment of this condition depends entirely upon the location of the atresia, the

\*Read before the Jefferson County Medical Society.

length of time of its existence, the amount of retained material, the extent of the tissue destroyed by the pressure and the presence or absence of bacterial invasion.

The following case report illustrates the so-called congenital type of gynatresia.

The patient, was a well developed, active single school girl of fifteen years. The family history reveals no information that would have any special bearing upon the present condition. The father, 58, and mother 57, are in good health. Two sisters and one brother are living and in good health. One brother died of acute tuberculosis in France during the War. There is no insanity or malignancy in the family. The past history shows that the patient had the usual diseases of childhood with no complications or sequelae. There was no established habit. The patient had never menstruated.

The patient stated that, during the past two years, once a month she had suffered with varying degrees of pain in her lower abdomen accompanied by a sense of weight and restlessness which would last about four days, after which she would be apparently well.

During the latter part of February the family doctor was called to see her and found her suffering with an attack of follicular tonsillitis with headache, high fever, rapid pulse, general muscular soreness, the follicles of the tonsils filled with purulent material. The usual measures were prescribed and she made an apparently, complete recovery.

About ten days later the doctor was called again to see her and found her suffering with pain in the lower abdomen. She was nauseated and had vomited several times—her temperature was 101° F., pulse 120, respirations 20. No defecation for two days. Palpation revealed a large tender mass in the lower abdomen, with rigidity on the right side. An attempt to make a digital examination revealed a tender bulging, imperforate hymen—rectal examination was very painful and disclosed a semi-solid mass, so large that the uterus could not be definitely felt. The mass extended practically as high as the umbilicus.

My examination corroborated the facts just stated. Careful scrutiny revealed a pin-hole os with a drop of dark, foul-smelling, mucopurulent material oozing through it. The hymen was very dense and fibrous or cicatricial.

The blood count showed 75% hemoglobin; 4,230,000 erythrocytes, 19,800 leucocytes. The differential count was 25%, lymphocytes, 73% polymorphonuclears, two transitionals, clotting time 5 minutes.

The urinalysis was as follows: specific gravity 1.024; cloudy; straw color; 3+ albumin present; sugar absent; indican pres-

ent; acetone present, diacetic acid negative,—microscopic examination showed epithelial cells; abundance of pus; many bacteria and erythrocytes.

After carefully considering the facts in this case I decided that a radical abdominal section was the proper surgical procedure because of the peritonitis following the attack of tonsillitis. I also thought that incision of the hymen would not relieve the tension in the tubes and further delay would cause a spreading peritonitis.

Under nitrous oxide-oxygen anesthesia and novocaine block the abdomen was opened through a median sub-umbilical incision which revealed a large, tense, hematosalpinx on the left side and a large tubal abscess on the right. This abscess had leaked and was fairly well walled off with omentum and small intestine. The left tube was easier to approach and was therefore removed first which we were able to do without soiling the peritoneum.

The general cavity was protected by placing hot wet saline gauze packs over the intestine and carefully walling them off. The right tubal abscess was ruptured while endeavoring to separate the omentum and the intestine from the tube.

Every precaution was utilized to prevent injury to the peritoneal coat of the intestines. After this tubal abscess was removed all raw surfaces were covered and three cigarette drains were carried into the cul-de-sac and a large piece of rubber tissue wrapped around them for further protection against the intestines adhering to the suture lines where the tubes were removed. The abdomen was closed by the usual tier suture method, several stay sutures were also inserted. The hymen was then freely incised and a rubber tube left in the vagina to facilitate better drainage.

Microscopic examination of the tubes showed marked leucocytic infiltration with abundance of pus, a stained specimen of which showed streptococci and colon bacilli.

After quite a stormy convalescence for several days, a lengthy interval of irrigations of both abdominal wound and vagina and a subsequent operation to close the abdominal wound which failed to unite primarily (due to the infection) the patient made a perfect recovery.

#### Qualitative Comparison of Various Digitalis Bodies.

—Experiments were carried out by Gold et al. with six widely different members of the digitalis group in order to ascertain whether these showed any qualitative differences in the cardiac action. Electrocardiographic criteria of digitalis action were used, and the relative intensity of action on different cardiac structures (in relation to the fatal dose) was used to indicate qualitative differences.



## SOME NEWER ASPECTS OF BACTERIAL ALLERGY\*

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The relation of allergy to diseases caused by bacterial agents is one of basic importance and one which it is essential to grasp in order to obtain a complete understanding of the fundamental changes which take place in disease. Except in relation to the disease tuberculosis there has been little to indicate any great interest in the relation of the course of any bacterial disease and its complications to a general or local sensitization by bacterial protein. The tests which we occasionally use to detect the presence of the allergic state in the human body are utilized primarily as diagnostic aids. The tuberculin test, the luetin test for the detection of syphilis, particularly in its tertiary stage, the typhoidin reaction in typhoid fever, the mallein test in glanders, the skin test for the diagnosis of undulant fever, and the recently developed intradermal injection of the bacillus of Ducrey in the diagnosis of chancroid, are all examples of this type of diagnostic and allergic reaction. The practitioner is prone to regard these tests simply as diagnostic aids, failing to realize that the fundamental allergic state, of which these tests are the outward proof, is markedly influencing the condition of the patient under his care. It is entirely probable that all bacterial diseases at some stage in their development or decline, show allergic phenomena which, if correctly diagnosed, might aid the physician to a more scientific treatment of the condition.

Allergy has, in the past, been so closely linked to the term "immunity" that a popular misconception as to their relation has been created—a misconception which is to be found today in the best medical texts. Such phrases as the following are frequently encountered: "Allergy represents an enhanced capacity of the tissue to react protectively against the invading micro-organism": "Allergy is a stage in the development of immunity": "Allergy is a phase of immunity." It has been shown (1) that allergy and immunity are probably separate and distinct reactions to bacterial invasion although they are usually co-existent in the animal body. Immunity protects the body against invasion by bacteria or prevents the further extension of a process to other parts of the body. The allergic state, on the other hand, exerts no protective influence either in respect to second attacks of the same disease or to the spread of the disease in the body into which

the causative organism has gained entrance. In fact, the existence of an allergic state toward a bacterial agent may be of distinct harm to the body and produce a dissemination of the disease rather than a localization of the infection, as was common in the past following large doses of tuberculin in a subject with latent or healing tuberculosis.

There has been much recent discussion of the possibility of allergy to bacterial protein being the etiological factor in many types of disease. Headache, influenza, scarlet fever, rheumatic heart disease, subacute bacterial endocarditis, iritis, gastric ulcer, chronic cholecystitis, appendicitis, mucous and ulcerative colitis, arthritis and a host of others, are under discussion in this category. While it is true that in many instances these condition may be reproduced in the experimental animal by methods involving local or general sensitization, it would as yet be unwise to consider each and every case of these diseases as being caused by allergic reactions alone.

Allergy today is one of the periodic medical fads which temporarily bias medical thinking. Years ago a similar place was given to pestilential miasms and constitutional diatheses, dietary deficiency, the endocrine glands or the reticulo-endothelial system, concerning all of which at the time of the acme of their popularity, little or nothing was known. So now it is with allergy. When some newer medical fad has taken the place now held by allergy, serious minded scientists will attempt to sift the few grains of wheat from the bushels of chaff now emanating from the pens of self-styled specialists in allergy, and we shall be in a position to justly evaluate its proper status.

It is manifestly impossible in so short a time to present any concerted and inclusive discussion of bacterial allergy. I wish, however, to mention two diseases in this connection—lobar pneumonia and nephritis. Both these diseases have this in common: Neither can be experimentally produced with any degree of certainty; yet both are undoubtedly of bacterial origin.

In 1920 Blake and Cecil (2) succeeded in producing typical lobar pneumonia in several monkeys. Other workers, trying to repeat the work of these experimenters, failed to confirm this, and concluded that lobar pneumonia in experimental animals could be produced only occasionally. Similarly in nephritis neither acute nor chronic lesions could, with regularity, be produced in experimental animals by the use of bacterial derivatives.

Stillman and Branch, (3) a few years ago, succeeded in producing lobar pneumonia in mice by first sensitizing them to pneumococci and later spraying the respiratory tract

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with living pneumococci. Sharp and Blake (4) have recently taken up this work and have succeeded by first sensitizing rabbits to pneumococcus autolysate, and other pneumococcus preparations, in producing typical lobar pneumonia by intra-tracheal injections of sterile pneumococcus autolysate. The degree of sensitivity as evidenced by skin tests is in direct ratio to the extent and severity of the pulmonary lesion. "Although this parallelism, so far as degree of reaction is concerned is not a strict one in the sensitive group, a result hardly to be expected. In a biological experiment of this type, the contrast between the non-sensitive and sensitive is sufficiently striking to seem significant and to leave little doubt that the acute exudative inflammation of the lungs in the sensitive animals is dependent upon the allergic state of the animal rather than upon any inherently injurious substances in the autolysate."

Several clinical observations are of particular interest if, for the purposes of discussion, we consider the disease an allergic condition in part at least. In the first place, a new-born child almost never develops lobar pneumonia. It is only at a later period after opportunity for sensitization to the pneumococcus has occurred, that lobar pneumonia has an increasing incidence. Similarly, individuals or groups of individuals who because of their geographic isolation, have never been exposed to infection with the pneumococcus, react peculiarly when such infection does occur because they are neither immune nor allergic to the pneumococcus. Examples are the Greenland Eskimaux and the native French troops from Algiers. These latter, during the World War, fell an easy prey to pneumococcus infection, but singularly the disease took the form of a fulminating and rapidly fatal septicemia without pneumonia—the same type of reaction that is frequently present in younger infants who have never been sensitized.

As we have pointed out, nephritis is another type of disease which has recently been studied by Lukens and Longcope (5) with the end in view of determining the missing link in our chain of evidence tending to incriminate bacteria as the etiological factors. By first sensitizing rabbits to the protein of the hemolytic streptococcus and subsequently injecting heat killed streptococcus protein into one renal artery, lesions entirely similar to those of human nephritis were produced. These lesions were not of the purely embolic and mechanical type, but involved both glomeruli and tubules, in a few cases to such an extent as to completely destroy a large percentage of the glomeruli. In this series of experiments the observations were only for a period of eight days and no lesions

other than acute nephritis were studied. It is possible that a chronic lesion might have been established if the time element had been prolonged, especially in view of the fact that such marked glomerular damage was inflicted by the allergic union of antigen and sensitized tissue of the kidney. These experiments are to be repeated and elaborated upon in our laboratory in the near future.

It is entirely possible, reasoning along these lines, that the nephritic conditions occurring in men during the course of streptococcus infections—particularly scarlet fever—may have their origin in an allergic reaction of this type. I should like to elaborate on this point, but my time is drawing to a close. In conclusion, I should like again to emphasize the fact that our knowledge of the fundamental reactions of allergy is still in a nebulous and formative state and it is well to evaluate critically the evidence on which assumptions are made tending to connect allergy with the etiology of bacterial disease.

#### REFERENCES

1. Rich, A. R.: *Bull. Johns Hopkins Hosp.* 47:189 Oct. 1930
2. Blake, F. G., and Cecil, R. L.: *Exp. Med.* 31:403 1930; *Ibid.* 31:445 1920; *ibid.* 31:499 1920.
3. Stillman, E. G. and Branch, A.: *J. Exp. Med.* 40:733 1924.
4. Sharp, E. A. and Blake, F. T.: *J. Exp. Med.* 52:501 Oct. 1930.
5. Lukens, F. D. W., and Longcope, W. T.: *J. Exp. Med.* 53:511 April, 1931.

### ALLERGY DUE TO CUTANEOUS ABSORPTION\*

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By the term allergy, we understand an altered reaction of the body to a foreign substance. The phrase, allergy due to external agents, does not serve to limit a group of cases of allergy from all other cases, because nearly all foreign substances to which the body may react abnormally, have an external origin. These foreign substances gain entrance into the body through the gastro-intestinal tract, respiratory tract, conjunctive or skin, or they may be artificially injected into the subcutaneous tissues or directly into the blood stream, occasionally they are absorbed from some focus within the body.

The list of substances to which certain individuals have been shown to react abnormally is very long and is constantly becoming longer, as our cases are studied more carefully and our observations made more accurately. Included in this list are both proteins and non-proteins, substances of animal, vegetable and mineral origin, organic and inorganic compounds, simple chemical compounds and mixtures so complicated that the

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active ingredient is frequently difficult or impossible to recognize.

Concerning the altered reaction of the body to substances of non-protein nature, it may be said that non-proteins can and frequently do act as allergens. This they may do by their own activity or by combination with proteins supplied by the allergic individual. There is experimental evidence to suggest that, in some instances at least, they act through protein combinations. The allergen in these cases may be said not to be a simple chemical compound, but a protein, foreign to the patient by reason of its combination with a foreign substance. This conception is in accord with that of the antigen-antibody reaction as an explanation for allergic phenomena. The physiological mechanism of these reactions is, at present, largely a matter of speculation and does not give us immediate concern in this discussion, which will be limited to a clinical consideration of allergic reactions due to cutaneous absorption.

A large variety of substances when placed in contact with the skin are absorbed in quantities sufficient to affect the organism. The absorption is said to occur chiefly through the hair follicles and sweat glands. Abrasions, fissures, or other lesions of the skin favor absorption. Multiple portals of entry are not uncommon; for example, the respiratory tract and skin, the gastro-intestinal tract and the skin, etc. The substances most commonly incriminated are those popularly known as chemicals and are very important from an occupational standpoint. The local cutaneous reaction due to contact with foreign substances is in many instances not allergic in nature but is due to corrosive keritolytic, protein precipitant, desiccating, oxidizing or other noxious action of the chemical. Examples of this type of action are the local destructive lesions due to strong acids and alkalis. While individual susceptibility to these agents is well recognized, all persons give a similar reaction, provided the chemical is applied to the skin in sufficient concentration for an adequate period of time. There are instances, however, in which a foreign substance applied to the skin, in some cases in relatively small quantities and low concentration, in a small percentage of individuals is followed by a reaction which differs radically from that by which the same individuals responded in the past, and differs radically from that produced in other normal individuals. In some instances the reaction is not confined to the place of contact with the irritant, but is present also in a distant part of the body. Such reactions are altered or abnormal, and may be designated as allergic. A sharp distinction between allergic and non-allergic reactions cannot be made in our present state

of lack of information concerning the physiology of these conditions.

The principal manifestation of allergy due to cutaneous absorption is dermatitis, characterized by erythema, papules, vesicles, exudation, desquamation, and thickening of the skin. A great variety of substances, when placed in contact with the skin of certain exceptional individuals, has been shown to produce dermatitis. A few may be mentioned as more or less typical examples; hair dyes, many of which contain para phenylenediamine (ursol), rouge, creams, germicidal soap, furniture polish, felt hats, dyed stockings and sox, rag weeds, asparagus, sunflowers, cotton seed, formaldehyde, novocain, photographers solutions, iodoform, flour, salt, sugar, varnish, chinese lacquer, brown section of newspaper and phenylhydrazine. One patient is reported as having dermatitis of the thigh due to a safety match box carried in the trousers pocket. Erythema could be produced with perfect regularity in an infant by allowing milk to come in contact with the skin.

Diagnosis of allergic skin condition is accomplished by means of a careful history, by examination of the location and other characteristics of the lesions, by exercise of what may be called the detective instinct, and by skin tests, of which four types may be described; first, the intracutaneous test in which an extract of the suspected substance is injected into the superficial portion of the skin; second, the scratch test, in which the substance or an extract is applied to a scratch made into the superficial portion of the skin; third, the contact or patch test in which the substance is held in contact with the unbroken skin for a time, usually 24 hours; fourth, the phenomenon of local passive transfer, in which serum from the blood of the allergic individual is injected intracutaneously into a normal individual, and one of the three above described skin tests made on the area of skin thus injected. If this test is positive, it is indicative of the presence of a sensitizing agent in the blood of the allergic patient. In the intracutaneous and scratch methods, a positive test is indicated by a wheal surrounded by an area of erythema, which usually forms in ten to thirty minutes, but occasionally the formation is delayed for a longer time. In the contact method, a positive test is indicated by erythema and swelling and sometimes by vesiculation confined to an area the size and shape of the patch applied. It is important to realize that a patient may be allergic to a certain substance and have severe symptoms from contact with it, yet skin tests with that substance may be negative. It is also true that a patient may be allergic to a certain substance as indicated by positive skin

tests with that substance, yet his symptoms be due not to that substance, but to something else. Allergic individuals may be for a time in a refractory condition in which skin tests are negative to substances to which the patient is highly sensitive and with which subsequent skin tests are positive. A condition of cutaneous hyperirritability may exist in which all tests, including the controls present areas of erythema. This it is evident that skin tests, while they are very important and constitute a great aid in diagnosis, are far from being infallible, and must be interpreted with caution and intelligence. The contact or patch method has been shown to be superior to other methods for the diagnosis of allergy due to cutaneous contact, especially in cases in which the allergen is a non-protein. Prevention of the development of allergy is impractical and frequently impossible because of the comparative infrequency of its occurrence and because of the frequent contacts with a multiplicity of foreign substances enforced by modern civilization.

Prevention of symptoms in an allergic patient may be accomplished by avoidance of contact with the allergens to which he is sensitive. When avoidance of contact is impractical or impossible, desensitization is to be considered. Attempts at desensitization in cases of allergy due to cutaneous contact are usually unsuccessful, in fact desensitization in the case of inorganic chemical compounds has been characterized as one of the curiosities of dermatology.

**Absence of Bacteriolytic Properties in Pleural Fluids Discharged in Course of Artificial Pneumothorax.**—Bezancon and Buc performed a series of experiments to determine whether bacteriolytic properties exist in the fluids discharged in the course of tuberculous pleurisy or in the discharge from artificial pneumothorax. Examination of the discharges from artificial pneumothorax revealed the presence of tubercle bacilli in twenty-two cases out of twenty-four. Inoculation of guineapigs with these fluids produced tuberculosis in every case. After about two months, however, the virulence of the bacteria was diminished, and it finally disappeared entirely. The disappearance of the virulence was not due, however, to the presence of bacteriolytic properties in the fluids, since it was shown experimentally that an emulsion of tubercle bacilli in physiologic solution of sodium chloride, kept in a water bath at a temperature of 37 C., also lost its virulence in about the same length of time. The seemingly curative effect of pleural discharges on tuberculous lesions must, therefore, be due to some factor other than the presence of bacteriolytic powers in the fluids themselves.

## POLLENS\*

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The role which pollens play in allergy is now fairly well understood by the medical profession at large. Indeed, with radio, press and periodical medical education thriving as at present, even the laity is not without some knowledge of this subject. To be sure it is often just the modicum of knowledge which is dangerous, but at all events, pollen education is being broadcast at such a rate, that, ignorant indeed is he who knows not something on the subject. Much instruction is coming from the pollen-gathering pharmaceutical houses, and to the busy practitioner, who has little time to investigate the latest advances in pollen allergy, let me say that these manufacturing folk can and will be of valuable assistance in supplying latest facts on the subject.

It has been estimated that 1 1-4 million persons in the United States are susceptible to hay fever. So many cases have been studied and treated with pollens now that the data ascertained are thoroughly reliable and extremely helpful. Some of the more important conclusions are all that may be included in a short paper of this kind.

### RESPONSIBLE POLLENS

Pollens cause allergic phenomena of the respiratory tract. In the skin and gastrointestinal tract allergic reactions are rarely seen from pollen and epidermal substances as they are not absorbed in sufficient quantities. Asthma and seasonal so-called "Hay Fever" are the results of pollen implantation on the respiratory mucous membranes. It is well to consider right here the more important pollens etiologically. As in other scientific advances simplicity has played a large part. In the first place, wind and insect pollinated plants have been differentiated. As the old song has it, "The flowers that bloom in the spring, tra-la, have nothing to do with the case," so that the much maligned golden rod, sunflower, cosmos, aster, etc., have been vindicated almost entirely. There is proof galore to establish this fact<sup>2, 3, 4, 5</sup>, as witness the following: Slides have been exposed in the vicinity of Louisville throughout the entire ragweed season for three years without a single granule of golden rod pollen being found, while at the same time the ragweed count has run from 12,000 to 20,000 granules. This is true in spite of the fact that golden rod continues to bloom longer than ragweed—usually about two weeks after the hay fever season is over.

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The pollen of golden rod is sticky and heavy and adapted to being carried by insects; only in the very strongest winds will any be blown from a plant and then only a few feet. Contrast this with ragweed pollen which has been collected in airplanes at an altitude of 5000 feet and carried by a wind for twenty-five miles. What is true of golden rod pollens practically holds for sunflower, except that sunflower pollen, while more plentiful, is heavier. "Rose Fever" and "Hay Fever," then, are simply suggestive names. In etiology the headlines are no longer "golden rod and sunflower," but "ragweed and timothy."

Various authors<sup>4</sup>, list from 207 to 250 wind blown pollens as causative factors<sup>5</sup> in asthma, and 100 to 113<sup>6</sup> in hay fever. Dividing the United States into sections or zones, the number increases from East to West. In this central section where we live and practice, there are 37 pollens found (7 important) and in Louisville 13 pollens (6 important), two ragweed and the four grasses—bluegrass, timothy, orchard grass and redtop. Many authorities<sup>7</sup> have gone so far as to maintain that but two pollens—ragweed and timothy are of vital importance in the diagnosis and treatment of pollen allergy. While this may seem a little extreme, their results would not indicate it. If there is any question in one's mind about diagnosis, or lack of time or opportunity for testing, he will not go far wrong in taking a chance on one of these two, in appropriate season. The flowering seasons of trees are so short that desensitization against their pollen effects is seldom attempted nor indeed is it necessary.

#### SYMPTOMATOLOGY

The rhinitis, coryza, conjunctivitis, headaches, sneezing and other symptoms of hay fever, are known too well to dwell on here. As for pollen asthma, but little need be said. It does not differ from other forms of bronchospasm except that: (1) it is seasonal in occurrence; (2) caused by a nitrogenous antigen and (3) follows a pre-existing hay fever. About 1-4 of all hay fever patients suffer also with asthma, and evidently a predisposition to asthma is given by attacks of hay fever. This is an important reason for energetic treatment of hay fever.

#### DIAGNOSIS

While this subject is to be more thoroughly discussed elsewhere on this program, I believe, several important points may be emphasized. While skin tests are by far the best means of diagnosing offending pollens, the history of the case should be carefully consulted.

Pitfalls in skin testing, that one must bear in mind are these (1) Testing allergens are not always pure, and standardized; (2) different parts of the body will react different

ly; (3) intradermal tests are more sensitive than skin scratching (4) positive reactions are more frequent in the young; and (5) no standard of skin reaction is accepted by all. Using standardized amounts of pure pollen intradermally, in the forearm and read by a standard method, will give very good results in diagnosis. But, the history is important. Though a patient may show a fine skin test to timothy, this is obviously not the causative factor if his hay fever or asthma occurs in September. One may get a fine skin reaction in Louisville to an insect pollinated plant of South America or Africa. Another misleading fact is that both golden rod and sunflower give good skin reactions—often severe reactions—on almost all ragweed sensitive patients. This is accounted for by the fact that they are closely related botanically to the ragweeds and evidently contain similar toxic elements. It is on account of this close relationship that a person who is sensitive to ragweed can be thoroughly immunized at times with golden rod pollen.

Diagnosis then should be based on skin reaction, or history of exposure to and symptoms from the type of pollens which are in the air about Louisville during the season when the patient suffers. In case of doubt choose timothy or ragweed, in appropriate season. Furthermore, it is worth while to consider heredity as well as environment, since hay fever and asthmatic tendencies surely run through families.

#### TREATMENT

Prophylactic: Careful pre-seasonal desensitization with appropriate antigens by the long interval or intensive treatment method will give from 75 to 85 % of patients relief. Repetition of this treatment yearly (annual testing not being necessary) for five to seven years will often give a permanent cure. Poor results will be due most likely to: (1) Failure to use the proper offending pollen (2) insufficient dosage, and (3) discontinuing treatment too soon. (For example, all fall hay fever sufferers in Louisville should be treated until September 1st at least and preferably ten days longer.)

Little will be said of dosage except that it is an individual question and may vary from one person being able to take a total of 30 c.c. of concentrated extract, to another who can take but 1 c. c. However, a patient's tolerance is likely to remain unchanged from year to year, and one series of treatments will serve as a guide to the next. Best results will be obtained and trouble avoided if one will remember (1) to begin with small doses and increase as rapidly as possible (the last few large doses are the ones which give immunity and should be injected just before and during the first few days of a ragweed or timothy pollinating season;

(2) never double a large dose; (3) never give a succeeding "shot" until reaction from a previous one has disappeared; (4) observe a patient for 30 minutes after treatment (adrenalin or ephedrin should be on hand for use with pollen injection or thereafter); (5) a tourniquet applied proximal to the point of injection will prevent rapid absorption; (6) care must be taken that pollen is not injected into a blood vessel.

Insofar as surgery or local treatment goes, it seems best to remove polypi and to let it go at that. Gross deformities may be corrected but too many thousands of individuals with anatomically normal upper respiratory tracts suffer with hay fever to warrant the countless number of turbinectomies, submucous resections, etc., now being performed in the name of hay fever prophylaxis. In some quarters, application of the vacuum electrode to the nasal membranes is regarded highly.

Treatment of Attacks: Pollen treatment will often help here also, but very small doses must be used at first and these with caution. If reasonably well tolerated dosage should be increased and injections given frequently. Favorable results have been reported from many sources where injections of stock or autogenous vaccine (from nasal secretions) accompanied pollen treatment. Ephedrin, adrenalin, atropine, calcium, salicylates and anterior pituitary are the drugs of choice.

Adrenalin, menthol and like substances, used as a spray or on tampons in the nose often give temporary relief with subsequent aggravation of symptoms. Ephedrin internally probably has come nearer to being an unmixed blessing than any other drug, while estivin for conjunctivitis gives considerable relief.

Travel and pollen-proof rooms are advisable for those whose funds are not congealed in certain local banks. The White Mountains and the decks of a steamer at sea offer the best escape. Ocean travel is not to be confused with a trip to the seashore, which rarely helps hay fever and often aggravates asthma. Some few have found relief by a self imposed seasonal retreat in a downtown apartment 20 stories or more above the streets.

#### ANIMAL EMANATIONS

For convenience, this subject will be divided into feathers, fur, hair, and dander as allergens. The number is legion, but there is time for consideration of only the most important of these.

#### FEATHERS

Feathers of all kinds of birds and poultry are potential and frequently proved causes of asthma. Those most commonly at fault are found in bedding. There is no practical method of distinguishing chicken, duck

and goose feathers from each other when so encountered. Adulteration of one kind with another is a common practice. Here, at least, one cannot say that "birds of a feather flock together." Less frequent avian offenders are canaries, parrots, turkeys, peacocks, ostriches, grouse, all caked birds, game and stuffed birds.

#### FURS

Furs hold an important rank among the causes of allergic asthma. They are so mixed however, in the modern garment that it is advisable to test the actual fur-made or trimmed garment of the sufferer rather than using the stock test proteins. "The London Chamber of Commerce lists the following striking counterfeits: "goat for bear; muskrat for seal, beaver, otter, mole, chinchilla or sable; and house cat for both skunk and sable."

#### HAIR AND DANDER

Horse, dog, cat and cattle hair and dander take front positions in this group of offenders. Although the beast of burden is fast becoming a vanishing curiosity on our streets, in this part of the country, one is apt to find horse asthmatics because of our race tracks and stock farms. And, it is interesting in this connection to note that even horse dung contains specific proteins which may cause asthma in stablemen, fertilizer spreaders, and the like.

Cat hair is met with not only in domestic pets, but in cheap furs, toy animals, bed and furniture stuffing.

Among the less frequently encountered hairs of human, monkey, rat, mouse, camel, hog, guinea pig, and rabbit; the last named stands out because it occurs so often in upholstery and mattresses, as well as being a pet and food. Sheep's wool in bedding and in knitting gives prominence to another epidermal.

#### DIAGNOSIS

Here a careful history and an investigating spirit is paramount. The most important factor in this connection is that if stock testing proteins do not give a lead to the offending substances, one should make a test of the actual articles with which the asthmatic is frequently in contact. A useful method of identifying epidermals is to take a small amount of unknown material place it on a slide, add a drop of 70% alcohol, and let this evaporate. Then add a weak solution of alkali, place a cover slip over all and examine through a microscope.

In seeking causative animal allergens, in doubtful cases, one should keep in mind the incidence of positive reactions. For example, in one series of 23,000 cases, feathers were the leading cause of reaction (21 per cent); horse dander, sheep's wool; cat dander, furs, cattle danders, and dog dander



following in that order.

#### TREATMENT

Against the more common animals emanations which it is impossible for the patient to avoid, hypo or desensitization is resorted to. The simplest method, of course, is to remove the offending agent permanently from the vicinity of the sufferer, or *vice versa*.

#### FOOD AS RELATED TO ALLERGY\*

LEE PALMER, M. D.

Louisville.

It has been conceded for many years that food plays an important part as a causative factor in many cases of asthma and eczema. In more recent years with the advent of the skin tests much work has been done on protein sensitization, and now it is a well established fact that the term "allergy" includes not only asthma, hay fever and eczema but also a host of other conditions such as urticaria, angioneurotic edema, migraine; abdominal symptoms, as nausea, vomiting, pain, constipation, colitis, with mucus and blood in the stools, frequency of urination with vesical tenesmus and epilepsy. Do not understand us to mean that every time a patient presents one of these syndromes that he is manifesting symptoms of allergy. However, it has been proven that many of these patients in whom no other causative factors can be found were due to protein sensitization.

Allergy has a marked hereditary tendency. In a study of 1000 allergic patients, Baley found a positive family history in 60% of the cases. Whereas in 403 non-allergic individuals he found a positive family history in only 9% of the cases.

It is of utmost importance when considering food allergy, to remember that while food may be the only contributing factor, it most frequently is one of two or more factors; therefore, one must depend on a carefully taken history and the reactions of the skin tests both by the cutaneous and intracutaneous methods to know just how much importance to place on each factor. In some cases even a positive skin test is of little or no importance, because as stated by Henry, the food might have caused trouble in the past, but by taking it over a long period of time the patient has been desensitized, though he retains a positive skin test. This phase of the question can only be determined by diet elimination and should be more fully discussed under diagnosis.

#### BRONCHIAL ASTHMA

Food allergy is the sole or contributing cause of many cases of asthma. It, how-

ever, is not the causative factor in as many cases of bronchial asthma as is pollens or animal emanations. Nevertheless, food is largely responsible for those cases of asthma, beginning within the first 18 months of life. Just how these young individuals become sensitized is not known. Ratner suggests that possibly they are sensitized in utero by the mother's diet. In any event by ingesting small amounts of the food for a long time, these patients gradually become desensitized. This accounts for many children out-growing asthma as well as other allergic manifestations.

Food in addition to being a specific cause of asthma acts in a non-specific manner. That is, foods that have a tendency to produce gas formation may by pushing upward on the diaphragm precipitate an attack of asthma, also the stomach should not be overloaded; the food should be well masticated, a heavy meal should not be eaten just before retiring, as disregarding these things may also precipitate an asthmatic attack.

#### ECZEMA

Nothing in medicine is more aggravating and more resistant to treatment than some cases of eczema. By manipulation of carbohydrates, fats and protein in the diet, together with the use of local medications, lights, x-ray, etc., about 50% of the cases are relieved. Many more of these cases are relieved by a careful study of the history, application of proper interpretation of the skin tests and diet elimination. The common foods as wheat, milk, egg, potato, pork, etc., are the most important causative factors in both asthma and eczema. An interesting point is that prolonged heat may change the protein of the food to render it harmless; for example, egg either fried, soft boiled or scrambled may cause immediate symptoms, whereas if it is cooked 45 minutes may be taken without harm. The same is often true of cooked milk, also the souring process of milk may render it harmless.

Case Report: A baby 10 months old had severe eczema since early infancy (a breast fed baby), was weaned because of eczema; then fed on a cow's milk formula with karo and water, cooking the formula for 2 hours. All types of local applications were used with no results. The formula was manipulated, omitting the cream and changing to different types of carbohydrates, etc., and finally the substitution of buttermilk and other types of milk for cow's milk, but to no avail. The mother had used all kinds of patented medicines with no relief. Skin tests showed a three plus reaction to beef, carrots and wheat; a two plus reaction to orange and oat. By eliminating these from the diet the improvement was phenomenal.

\*Read in Symposium on Allergy before the Jefferson County Medical Society, April 20, 1931.

### URTICARIA AND ANGIONEUROTIC EDEMA

Hives and nettle rash occur very commonly in children and occasionally in adults. In some cases they occur at infrequent intervals. In others they have a tendency to be chronic. The specific cause of hives can only be found in about half of the cases. They frequently are due to absorption of toxins either from a focus of infection or from the intestinal tract. Nettle rash on the other hand is practically always due to a specific protein and that offender can usually be found. Urticaria is generally due to the uncommon foods as, celery, radishes, chocolate and fish, and may occur within a few minutes after the food is ingested, or it may be delayed for several hours.

Angioneurotic edema is an allergic manifestation in which there is marked swelling of the subcutaneous tissues, also there may be swelling of the mucous membrane. Hives may be associated with this swelling. The specific cause of this condition can be found in only about 15% of the cases.

Case Report: A one year old baby had been taking egg yolk for two months, was given a small quantity of egg white and within a few minutes the baby began to cry as if in distress. The face suddenly became markedly swollen, the swelling also extended downward on the body; the mucous membrane of the mouth was also swollen. 3m of adrenalin immediately gave relief.

### MIGRAINE

Many authentic cases of migraine due to food protein have been reported. This should be considered as a possible cause in all cases of sick headache. While only about 30% of these cases are found to be caused by a specific food, yet in patients with a positive family history and especially those with a personal history of allergy are you apt to find the cause by carefully testing. By the elimination of the offending food, many of these patients are relieved.

### ABDOMINAL ALLERGY

Abdominal allergy manifests itself as nausea, vomiting, pain, belching, constipation, diarrhea, often with mucus and blood in the stools. Frequently symptoms very similar to surgical lesions of the abdomen are due to allergy. Duke, Anderson, Rowe and others have pointed out the danger of unnecessary surgery in these cases.

A typical case of this kind is that of D. P. L. who is perfectly well except for an occasional mild attack of asthma. Whenever he eats apple, whether cooked or raw, within about two hours there is a sense of fullness and uneasiness in the abdomen. A little later there begins generalized abdominal pains and about 4 to 6 hours after the ingestion of apple there begins a severe diarrhea with much mucus and tenesmus. The following day

there will be severe diarrheal stools, a foul breath, bad taste in mouth, loss of appetite and a general ill feeling, which continues for about two days.

### OTHER MANIFESTATIONS OF ALLERGY

Epilepsy: There are a number of authentic cases of epilepsy on record where the trouble was entirely due to protein sensitization. Balyeat states that any case of epilepsy with an ancestral history of allergy, or who suffers from such diseases himself, should be thoroughly studied from a standpoint of food sensitization as a possible cause of the malady. Wallis and Nicol found in a series of 122 cases a considerable number of epileptics benefited by diet elimination based on skin testing plus administration of peptone by mouth.

Hay fever and nasal symptoms though usually due to proteins and animal emanations are occasionally caused by food allergy alone, or secondary to some other factor. Duke in his book on allergy states that food is a rather frequent cause of dizziness, hypotension, irritable bladder and disturbed menstruation.

### REFERENCES

1. Balyeat—Allergic Diseases. Diag. and Treatment, page 24.
2. Henry—Personal communication on reported data.
3. Rowe—J. A. M. A. Nov. 24, 1928.
4. Peshkin—J. A. M. A. C. June 1926.
5. Ratner—J. A. M. A. Feb. 21, 1931.
6. Wallis, Nichol and Craig—Lancet, April 14, 1923.

**Toxicology of Thallium.**—Lynch and Scoville are of the opinion that thallium acetate should not be used as an ordinary routine treatment for ringworm of the scalp, because: 1. Thallium in itself is a highly toxic substance showing a marked similarity to lead, both in its chemistry and in its toxic symptoms, and the far-reaching effects of the poison are much greater than is generally supposed. 2. It has a definitely selective action on all forms of nervous tissue, and even in infinitesimal doses it causes slight degenerative changes in the brain cells of rats. It is therefore most unlikely to leave the human brain entirely unchanged, and it seems impossible to be certain that it does not hinder further brain development. 3. The margin between an epilating and a toxic dose is extremely small and allows for no idiosyncrasies, whereas with roentgen rays the dosage is very accurate, trouble is rare, and if a mishap occurs it is at least local. 4. Ringworm of the scalp is not in itself a fatal disease and, though often troublesome, can usually be cured by other means. It therefore does not seem justifiable to use such a powerful poison in an attempt to cure it a little more quickly. 5. It is quite easy to obtain thallium salts in a state of purity, and there is no especial reason why a solution which has been kept for some time should not be used. The authors do not believe that toxic phenomena were ever due to the use of an old solution.



**WOMAN'S AUXILIARY  
PROGRAM OF THE EIGHTH ANNUAL  
MEETING OF THE WOMAN'S AUXILIARY TO THE KENTUCKY STATE  
MEDICAL ASSOCIATION**

**Held at McVey Hall, University of Kentucky  
Lexington, Kentucky**

**September 7-8-9-10, 1931**

Every woman attending the convention is cordially invited to all of these meetings.

**Monday, September 7**

9:00 A. M.-4:00 P. M.—Registration, McVey Hall  
(Will every woman please register immediately upon arrival.)

2:00 P. M. Round Table Conference—Mrs. V. A. Stilley, Benton, Presiding.

Subject—Programs for County Auxiliaries.

Discussion led by Miss Pauline Haley, Covington; Miss Dorothy Collins, Hazard.

4:00 P. M. Pre-Convention Board Meeting—Mrs. E. B. Houston, Murray, Presiding.

(All County Presidents, State Officers and Chairmen are urged to be present. All members are invited.)

8:00 P. M. President's Report to the House of Delegates. Mrs. E. B. Houston, Memorial Hall.

**Tuesday, September 8.**

9:00 A. M. to 4:00 P. M. Registration.

9:00 A. M. . . . . Memorial Hall  
Joint meeting with Kentucky State Medical Association for the installation of the President, Dr. J. T. Reddick, Paducah

9:45 A. M. General Meeting. . . . McVey Hall  
Mrs. E. B. Houston, President, in the Chair

**Program of Opening Session**

Invocation—Rt. Rev. H. P. Almon Abbott, Bishop of Lexington.

Address of Welcome.

Response

Report of Committee on Arrangements, Dr. L. C. Redmon, Chairman.

Chairman of Entertainment—

Mrs. C. A. Vance.

Chairman of Golf—Mrs. L. C. Redmon.

Report of Credentials and Registration

Roll Call of Delegates

Minutes of the Seventh Annual Meeting

Report of the President

Reports of County Delegates

Address—Intelligent Health Protection for Childhood. Dr. J. L. Jones, Epidemiologist.

Announcements

Recess

12:30 P. M. Subscription Luncheon—Mrs. E. B. Houston, Presiding, University Commons.  
Speaker—Prof. W. L. Nofeier, Kentucky, Chairman, White House Conference.

Tickets 75c

800 P. M. Joint Meeting with Kentucky State Medical Association; Memorial Hall.

**Wednesday, September 9**

9:00 A. M.-4:00 P. M.—Registration.

9:30 A. M. General Meeting. . . . McVey Hall  
Mrs. E. B. Houston, Presiding

**Program of Second Session**

**Reports:**

Officers

Councilors

Chairmen of Committees

Delegates Woman's Auxiliary to the American Medical Association

Delegates Woman's Auxiliary to the Southern Medical Association.

Unfinished Business

New Business

Report of Committee on Resolutions

Report of Nominating Committee

Election of Officers

Installation of the President

Address of the President, Mrs. George A. Hendon, Louisville

Introduction of New Officers

Announcements

Adjournment.

12:30 Noon. Annual Luncheon (Guests of the Kentucky State Medical Association) Mrs. E. B. Houston, Presiding, Lexington Country Club.

In honor of the National Presidents

Mrs. A. B. McGlothlan, St. Joseph, Mo.

President, Woman's Auxiliary to the American Medical Association

Dr. E. Starr Judd, Rochester, Minn., President, American Medical Association.

**Special Guests**

Dr. W. B. McClure, Lexington, President, Kentucky State Medical Association

Dr. J. T. Reddick, Paducah, President-Elect, Kentucky State Medical Association

**The Advisory Council:**

Dr. W. E. Gardner, Dr. V. A. Stilley, Dr. A. T. McCormack.

**Wednesday, September 9**

4:00 P. M. Post Convention Board Meeting  
McVey Hall, Mrs. George A. Hendon, Presiding.

(All County Presidents, State Officers and Chairmen are urged to be present. All members are invited. Plans for coming year will be considered.)

8:00 P. M. Public Meeting, Memorial Hall.

Address—Dr. E. Starr Judd, President, American Medical Association.

10:00 P. M. Reception at Good Samaritan Hospital.

**REGISTER EARLY**

"The minute you reach Lexington, you go straight and register," said Mrs. H. to Mrs. B. And—that applies to you and me!

# Kentucky Medical Journal

Published Monthly By

THE KENTUCKY MEDICAL ASSOCIATION  
Incorporated

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### Business Editor

L. H. SOUTH.....Louisville

NEXT MEETING LEXINGTON, SEPTEMBER 7-10.

## COUNTY SOCIETY REPORTS

**Seventh Councilor District:** The Seventh Councilor District held a meeting at Crab Orchard Springs, Wednesday, July 22nd. There was an unusual departure from the regular program in that there were no papers but all speeches were spoken, in the form of case reports.

The following program was carried out:

Address of Welcome—Virgil Kinnaird, M. D., Lancaster, Councilor of the Seventh District.

Response—M. M. Phillips, M. D., Crab Orchard.

My Experience as Health Officer of Lincoln County—W. F. Lamb, M. D., Stanford.

Dinner—12:30 to 2 P. M.

Surgery of the Gall-Bladder—Wallace Frank, M. D., Louisville.

Hemolytic Staphylococcus Septicemia—G. G. Altman, M. D., Louisville.

Goiter Under Local Anesthesia, with moving pictures—Frank Strickler, M. D., Louisville.

Potential Cancers, Stereopticon Slides—W. J. Young, M. D., Louisville.

Practical Demonstration of the Dick Test—J. L. Jones, M. D., Louisville.

Practical Demonstration of Examining the Chest—Oscar O. Miller, M. D., Louisville.

This was an unusually interesting meeting because two of the speakers illustrated their talks with moving pictures. The following doctors were present:

J. Leland Tanner, M. D., Albany,

R. E. Teague, M. D., Monticello,

Edward Caldwell, M. D., Waynesburg,

D. B. Southard, M. D., Stanford,

F. P. Strickler, M. D., Louisville,

E. J. Brown, M. D., Stanford

W. F. Lamb, M. D., Stanford,

Virgil Kinnaird, M. D., Lancaster,

M. M. Phillips, M. D., Crab Orchard,

T. W. Frank, M. D., Louisville,

Oscar O. Miller, M. D., Louisville,

G. G. Altman, M. D., Louisville,

Walker Owens, M. D., Mt. Vernon,

W. A. Jones, M. D., Wildie,

J. L. Jones, M. D., Louisville,

L. H. South, M. D., Louisville,

W. B. Cunningham, M. D., Louisville,

W. B. McClure, M. D., Lexington.

C. C. Barrett, M. D., Lexington,

Carl Norfleet, M. D., Somerset,

Miss Charlotte Taylor, Louisville,

Mrs. B. Storey, Mrs. Wm. F. Lamb, Stanford.

V. G. KINNAIRD, M. D.,

Councilor Seventh District.

**Bourbon:** The Bourbon County Medical Society held its regular meeting, Thursday evening, July 23, 1931, at 8 p. m. The meeting was held in the County Court Room.

The reading of the minutes was omitted on motion. Dr. Daugherty made a motion that the Society recommend to the School superintendent



that the children be allowed not less than one hour for the lunch hour. Motion seconded and carried.

Dr. Daugherty made a motion that the visiting doctors be extended full privileges of the floor. Seconded by Dr. Ussery and carried.

Members present: Dr. J. A. Orr, C. G. Daugherty, I. Oberdorfer, H. M. Boxley, W. C. Ussery, M. J. Stern.

Visitors: Drs. Pittinger, Daily, Cower, Paris; Drs. Overstreet and Jewett, Lexington; Dr. DeWitt, North Middletown, and Drs. Wyles and Martin, Cynthiana.

Dr. Overstreet, Lexington, read a paper on "Relation of Nasal and Oral Pharynx." This was illustrated with lantern slides. The discussion was opened by Dr. Jewett, followed by Dr. Pittinger, Drs. Martin, Daily, Boxley, Comer, Ussery, Daugherty and Orr and closed by Dr. Overstreet.

MILTON J. STERN, Secretary.

**Grant:** The Grant County Medical Society met with Dr. N. H. Ellis, Health Officer, of Grant County, with the following members present: Dr. J. W. Abernathy, President; Dr. A. D. Blaine, Vice-President; Dr. C. A. Eckler, Secretary and Treasurer; Dr. C. M. Eckler, delegate to the State Medical Society; Dr. H. F. Mann, alternate. Other members present were Dr. N. H. Ellis and C. D. O'Hara.

The meeting was called to order by President J. W. Abernathy, and collection of dues for the State Society was called for from those who had not sent their dues.

Drs. A. D. Blaine, J. W. Abernathy, C. M. Eckler and C. A. Eckler paid five dollars annual dues.

Under new business there was a motion and a second carried to appoint a committee to visit the Fiscal Court and see why the Pauper Fund of three hundred dollars had not been paid to the physicians this year.

Dr. N. H. Ellis and Dr. C. A. Eckler were appointed on that committee to report at the next meeting.

The place for our meeting was selected at Dr. N. H. Ellis' office at seven-thirty each third Wednesday evening unless otherwise specified. Motion and second carried to write up the proceeds of the meeting and have it published in the Grant County News. Also send a copy of the proceedings to the Journal of the State Medical Society.

No further business of importance, we entered into the regular program of the evening.

Miss Cowart, Public Health Nurse, delivered a most excellent talk as to her work in this county, in co-operation with the doctors of the County.

She divided her work, in her talk, into four headings. First the Prenatal, dealing with expectant mothers' and ones wished seen when especially notified by their family physician.

Next was the infant and the Pre-school age as to developing their health by correcting abnormalities as far as possible. Next the school, by examination, of the pupils and etc. and finally some general work.

Co-operation was her motto at all times, and nothing antagonistic to the medical profession.

The following members discussed her talk, Dr. C. D. O'Hara outlining the many benefits to be derived from the Public Health Nurse. Drs. Blaine, Mann, C. M. Eckler, and Abernathy also entered into discussion.

The subject for next meeting was to be Round-Table discussion of all varieties of measles and complications, followed by case reports.

There being nothing further, and having had a most enjoyable meeting, we adjourned to meet the third Wednesday in August at the usual time, seven-thirty p. m.

C. A. ECKLER, Secretary.

## FORUM

To the Editor:

Dr. Louis Frank in the July number of the Kentucky Medical Journal gave a very valuable digest of the work that has thus far been accomplished in arriving at some sort of a conclusion as to the etiology of cancer.

The cancer cell of Lipschutz has to all appearances been the nearest to type of cell that seems to have an etiological factor in the causation of the disease. Lipschutz differentiates the "Cancer Cell" from all other epithelial cells by a certain peculiar body found alongside of the cell nucleus. Now what is this "certain peculiar body"?

In my article appearing in the June number, I wrote of a possible fungus origin.

If we will but study the growth of the mushroom, it will be noted that where the soil is just right, the plant will flourish and in other parts between but a fibril condition will exist. This fibril may be transplanted and bear fruit under certain conditions.

Rubbing daily the same place with coal tar will produce cancer. That has long been recognized; but it does not vitiate the possibility of another etiological factor,—unrecognized so far, being an accompaniment.

The nematode found in the cock roach likewise has been found to be a factor; but is it the only one in these cases?

Perhaps Lipschutz and his "Cancer Cells with their peculiar body found along the side the cell nucleus" may be eventually proven to be the one great cause; but would it be amiss to see if there be not a fungus as the etiological factor that has been overlooked in our eagerness to find germs, which so far have failed to come forth and be recognizable by means thus far at the disposal of our scientists?

O. L. REYNOLDS, Covington.

## BOOK REVIEWS

**WHAT THE PUBLIC SHOULD KNOW ABOUT CHILDBIRTH.**—By Walker Gossett, M. D., Louisville. Midwest Publishing Company, Minneapolis. Price \$2.00.

Dr. Gossett's book is just what its name implies: "What the Public Should Know About Childbirth." As I read its pages I experienced a profound desire that every layman and physician could read it. The greatest obstacle we encounter in improving obstetrical conditions is the ignorance of laymen on the vital importance of good obstetrics, and a sad lack of knowledge as to what constitutes proper care.

Neither are we, as doctors, without fault. Too often the physician permits the ignorance, traditions and customs of his patients to influence him in a lowering of his standards. This book contains information for the doctor which is not found in text books—the professional obligations to his obstetrical patients.

I believe it to be the duty of the laymen to inform himself or herself on this all-important subject, and this book supplies adequately and attractively this information.

Beyond any question, if every layman and doctor on this continent would read and heed this book, our distressing material and newborn death rate would be cut in half.

W. T. McCONNELL.

**CANCER. ITS ORIGIN, ITS DEVELOPMENT, AND ITS SELF-PEYSELUATION. THE THEORY OF OPERABLE AND INOPERABLE CANCER IN THE SIGHT OF A SYSTEMIC CONCEPTION OF MALIGNANCY.**—By Willy Meyer, M. D. Paul B. Hoeber, Inc., New York, Publishers. Price, \$7.50.

Dr. Meyer deals with the tumor cancer as an ordinary, lawful reaction of the tissue to certain systemic and local morbid conditions of the human organism. He denies the autonomy of cancer and asserts chronic irritation is its potential source. To explain predisposition he believes all people are predisposed whose body fluids react with a higher than normal alkalinity.

Its thirty-eight chapters are the result of study undertaken for the publishment of a series of three articles. The resulting book bears witness to the enormous mass of material available on cancer.

**EASIER MOTHERHOOD.** — By Constance L. Todd. John Day Company, Publishers, New York.

"For all those people, both men and women of the lay and the medical worlds, who believe that all needless suffering is monstrous and that upon an advancing civiliza-

tion is laid a definite obligation to abolish it, whatever the cause, this handbook may serve as a weapon, an implement to their hand, not by virtue of opinion but of accumulated facts. It is specifically offered to those young women of today who are destined to bear the next generation, and to the husbands, mothers, relatives and friends who hold them dear. It is written in the hope that it may bring them aid for their immediate needs; and, since a dread of pain indicates neither cowardice nor lack of character nor selfishness, but rather imagination and sensitiveness, it may perhaps serve to enlist a certain number of these women in the battle for the release of other women."

**DISCOVERING OURSELVES: A VIEW OF THE HUMAN MIND AND HOW IT WORKS.**—By Edward A. Strecker, A. M., M. D., and Kenneth E. Appel, Ph. D., M. D. MacMillan Company, New York, Publishers. Price \$3.00.

Why are we as we are? All around us we see people, perfectly normal in most respects, yet handicapped by some mental quirk that sets them off as slightly different, or odd, or irritable, or jealous, or fearful, or inferior. Back of all these common place phenomena of everyday life there are underlying causes to which the trained psychiatrist attaches a deep significance.

Need we continue to be this way? The authors say that we can change ourselves, but only after we have learned the causes of our trouble.

Drs. Strecker and Appel approach the subject in a way that will appeal to student and layman alike, bringing to bear on the whole problem their deep scientific knowledge and experience in dealing with people.

Dr. Strecker is Professor of Mental and Nervous Diseases, Jefferson Medical College, Philadelphia, while Dr. Appel is Associated Professor of Psychiatry School of Medicine, University of Pennsylvania.

**HEART DISEASE.** — By Paul Dudley White, M. D. The MacMillan Company, New York, Publishers. Price \$12.00.

The need of a clear, concise, and comprehensive presentation of the diagnosis and treatment of heart disease in the light of modern knowledge was Dr. White's incentive in publishing his nine hundred and thirty page monograph on heart disease. He has omitted all detailed references, controversies and theoretical discussions from his text but has included a very worthwhile bibliography of two hundred pages. The book is of interest to the general practitioner, although intended for the specialist as well.





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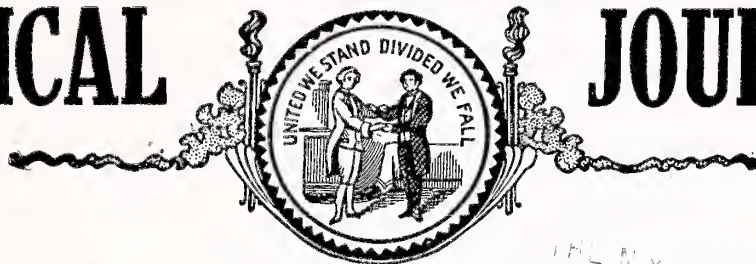
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# KENTUCKY MEDICAL JOURNAL



Published Monthly by the Kentucky State Medical Association Under the Supervision of the Council

VOL. 29. No. 10

BOWLING GREEN, KY.,

OCTOBER, 1931

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# The liberal use of cow's milk in the child's diet is desirable for its calcium and phosphorus content when its well-known deficiencies in iron and vitamin B (F) are made good with Mead's Cereal

THE Journal of the American Medical Association<sup>1</sup> based on recent research by Sherman and Booher<sup>2</sup>, raises the question as to whether the relatively large consumption of milk (up to a quart a day) should be routinely recommended, on account of the deficiency of milk in iron and the resultant relation to anemia. On the other hand, if the milk ration is

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<sup>1</sup> Editorial, Storage of Calcium, J.A.M.A. 96:197 (1931). <sup>2</sup> Sherman, H. C. and Booher, L. E., The Calcium Content of the Body in Relation to that of the Food, Proc. Soc. Exper. Biol. & Med. 28:91 (1930).

## PRINCIPAL FUNCTIONS OF CALCIUM

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- (7) Coagulation of blood
- (8) Antagonism to toxic effects of potassium and magnesium ions.

Refs: F. R. Fraser, J. C. Hoyle, etc., etc.



# KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

VOL. 29 No. 10

BOWLING GREEN, KY.,

OCTOBER 1931

## EDITORIALS

### HEALTH ON THE FARM

Under the title "Health on the Farm and in the Village" Doctor Winslow of Yale has just published, through The MacMillan Company, "A Review and Evaluation of the Cattaraugus County Health Demonstration with Special Reference to Its Lessons for Other Rural Areas."

Doctor Winslow is one of the most experienced and learned men in public health work. This latest publication is of tremendous value to the discriminating reader. He shows conclusively that the remarkable work of the Cattaraugus demonstration cannot be duplicated at present in a considerable majority of the counties in the United States because it is economically impossible without grants of Federal or other outside aid out of all proportion to present possibilities.

However, the practical philosophy of his work will be informative and stimulating not only to health officers, but to legislators, county judges and all others interested in modern public health practices. He analyzes the eight year demonstration in Cattaraugus County mercilessly. He evaluates each item. The unthinking reader in Kentucky would be discouraged by the fact that in this Cattaraugus County demonstration two dollars per capita was expended where, as a rule, we are only able to secure from twenty to thirty cents. It will interest the health officers and people of the counties in which our work has been best done that, because of the fine co-operation of the medical profession and people in them, quite as good results have been secured. He deplores the failure in the early years of the demonstration to put proper emphasis on environmental sanitation. This was a rather natural omission in a Northern state, but it is one that is inexcusable in Kentucky.

Doctor Winslow wisely insists that it is impossible to make any complete appraisal of county health work in less than a ten year period. "All that we can hope for is an evaluation of the program with the certainty that, if it be sound, it will bear fruit during an indefinite period for the future." He quotes the president of the County Board of Health as saying, "It has been shown conclusively that it is possible and practicable to establish a health department in a rural

county in New York State and that such a health department can furnish an effective health service for those living in the county. It has been shown also that county authorities are sufficiently interested in such a service to give it substantial financial support, thus ensuring the continuation of the work."

He especially develops an interesting discussion of the School Health Service, The Nursing Program, Tuberculosis Control, Consultation and Laboratory Service and Nutrition Studies. One of the most significant chapters is entitled Social Service. He is astonished at the appalling extent of the social problems that present themselves in a rural area. This particularly astounds "the layman to whom the countryside is a symbol of peace and plenty, while poverty and suffering are considered as attributes of the city tenements." We quote:

"The visitor driving along the main motor-roads of Cattaraugus County sees, for the most part, only prosperous, well-painted farms and residences with spacious barns and gardens aflame with roses and hollyhocks. The picture obtained is scarcely more typical than a view of New York City obtained on Fifth Avenue or Riverside Drive. In the hamlets up in the remote valleys, among the hills, lies the gravest problem. Here, the tenant farmer struggles with poor and unproductive land and uses every spare cent to pay for fodder for his dairy cattle.

"It is not only in the more ill-kempt and dilapidated farms, however, that social problems are presented. Even where there is a fair exterior, living conditions may be arduous; and the net total of the problem revealed during the past six years in Cattaraugus County is staggering. In a single month, the first social worker to attack this heavy task reported 38 new cases representing 'dependency, inadequate relief, desertion, delinquency, mental defect, neglect, improper guardianship, poverty, rape, incest, immorality, transportation for tuberculosis cases, venereal disease, placement of dependent children and supervision of boarding homes'."

We commend the reading of the whole chapter to the thoughtful citizen of Kentucky. It suggests the substitution of Social Service for the outworn, outlandish pauper relief practiced so superficially and inade-

quately in our county, town and city governments.

Doctor Winslow's excellent book should have a profound effect on public health administration in the United States and the comparatively large sums and ample staff of Cattaraugus County will be a stimulus to the thoughtful health official and citizen of our poorer counties, where it is only possible for us to secure proportionate results by developing finer organizations through cooperation.

#### A KENTUCKY DOCTOR HONORED

At the annual meeting of the Medical Women's National Association held in conjunction with the American Medical Association in Philadelphia, June 6, Dr. Alice Pichett of Louisville was elected Vice-President. Dr. Pichett is Assistant Professor of Obstetrics in the Medical department of the University of Louisville, is a member of the department of obstetrics of the university holds positions on the staff of the Kentucky Baptist Hospital, Saint Joseph's Infirmary and the Norton Memorial Infirmary, and is chief-of-staff of the Susan Speed Davis Home and Hospital. We congratulate Dr. Pichett upon this honor.

#### A VANISHING PROFESSION

In his usually delightful style, Doctor Jacob A. Flexner wrote in the July Atlantic Monthly a most interesting article, under the title "Drug-Store Memories of Long Ago." Memories are the sort of things one must read from the original manuscript to properly appreciate and those who read Doctor Flexner's article will be delighted.

The druggist in the days of which Doctor Flexner writes was a learned man in the fine technique of a complicated pharmacy. His knowledge of botany and crude drugs was wonderful to behold. The very character of his apprenticeship and training was a fine thing and it would be an interesting study to see how many of the apprentice druggists of that day became successful business men of the next generation. In Bowling Green we recall nine men who were trained in the drug store of the Messrs. Younglove. One of them became President of the Wells-Fargo Express Company; another the auditor for the same great concern; another is now the Vice-President and General Manager of the Reliance Life Insurance Company; two others became proprietors of drug stores of their own, and both occupied capably the position of Mayor of their city for many years; one of the others became a prominent banker in Chicago. All were unusually successful and influential business men.

The profession of pharmacy has become a quite different thing and I know there are outstanding leaders in the drug trade today as there were then. Their wares have become more diversified and the real pharmacist in the store is sometimes too much obscured by the lunch counter, soda fountain and department store of the front of the shop. In the cities too many of them have become liquor dispensers. But the fine spirit of the profession remains and the sessions of the Kentucky Pharmaceutical Association are full of interest to the scientist today.

#### THE SOUTHERN MEDICAL

The Southern Medical Association is very popular in Kentucky. It is always well attended by our physicians; they have been honored repeatedly by many offices in this Association, and they look forward with a great deal of pleasure to the New Orleans meeting.

The Roosevelt Hotel has been selected as the general headquarters. This is one of New Orleans largest and most modern hotels. Among other good hotels in New Orleans are the Jung, St. Charles, Monteleone, De Soto, Marbero, and Bienville. Write the hotel of your choice and make your reservations early.

#### THE LEXINGTON MEETING

Another Annual Session of the Kentucky State Medical Association has become part of the history of Kentucky. It was a most successful meeting. More counties were represented than at any previous session of the Association. This is a first-hand tribute to the building of good roads that are consolidating and uniting the whole Commonwealth.

The splendid scientific program prepared by Doctor C. N. Kavanaugh, of Lexington, was carried through without a hitch. The discussions were ample and these essays and discussions will fill the pages of the next few issues of the JOURNAL with valuable material.

The proceedings of the House of Delegates were of unusual importance and we are confident that its minutes will be read by every physician in the state because every single one of them and all of the people are interested in what was done at Lexington.

The sessions of the Woman's Auxiliary were splendidly attended and its report to the House of Delegates, through Mrs. E. B. Houston, its President, was one of the most valuable portions of the session. The election of Mrs. A. T. McCormack as President, was a recognition of her untiring and valuable work as a member of the Auxiliary.

The program of the public session was one



of the best we have ever attended. Doctor Reddick's Presidential Address made the history and achievements of the past fifty years a platform of progress for the future. Mrs. A. B. McGlothlan, the President of the Woman's Auxiliary to the American Medical Association, presented the opportunity of this organization in the promotion of public health education so clearly as to enlist the support of every doctor and every doctor's wife. The address of Doctor E. Starr Judd, President of the American Medical Association, on the work of the great parent organization, with its hundred thousand members, was so clear that it should be repeated to every leader of public opinion everywhere.

The gratitude of the Association is especially extended to Doctors Redmon, Vance and Chambers, of Lexington, and their associates on the Committee on Arrangements and to the Authorities of the University of Kentucky and to the Lexington Herald and Lexington Leader for care in the conduct and publicity of the meeting that marked it as one of the best the Association has held in its eighty-one sessions.

#### OUR NEW OFFICERS

The men who have been selected as leaders of the medical profession since its inception in 1851 will compare favorably with men of our Supreme Court, the American Bar Association or any other organization of *Intellegensia*. This year the choice for leaders of our forces is no exception to the rule. Dr. Philip F. Barbour of Louisville, was elected president, he is known and beloved by every doctor in Kentucky and for several years has devoted unstintingly of his time from a busy practice for the furtherance of the Post Graduate School conducted by the Kentucky Medical Association.

In listening to the nominating speeches of all the officers we rejoice that there are still men in the world that give of their time and strength for the betterment of humanity, that are aiding in the amelioration of suffering and distress, and who follow the motto of Osler, that physicians cure seldom, relieve often and comfort always.

From the three sections of the State the Vice Presidents were chosen, as follows: C. R. Petty, Lynch; L. C. Hafer, Ludlow, and E. A. Stevens, Mayfield.

Dr. C. N. Kavanaugh, Lexington was elected Orator in Medicine and R. Glenn Spurling, Louisville, Orator in Surgery and Louisville will be the next meeting place.

#### ORATION IN SURGERY

#### OTITIC MENINGITIS, AN ABSTRACT REVIEW\*

SAM B. MARKS, M. D., F. A. C. S.

Lexington.

The writer has chosen this subject, first because no member of this body, whatever his specialty may be, is immune from having suppurative meningitis occur in his or her practice and second because of the vast amount of research and progress which has been made during the last five to ten years in the diagnosis and treatment of this almost always fatal disease.

It is essential in the study of this condition to have a proper understanding of the anatomy and physiology of the arachnoid membrane, the arachnoid space and its ramifications and of the cerebro-spinal fluid.

The arachnoid membrane, first described by Galen and named by Blaes in the 17th century, arachnoid meaning a spider's web, is well and briefly described by Wood<sup>1</sup> as a thin delicate highly vascular reticular membrane lying beneath the dura mater and composed of two cellular layers, the outer of which is continuous and invests the whole central nervous system, while from the inner layer project many delicate trabeculae containing the cells of this layer. These trabeculae are very delicate, the larger containing very fine fibrous filaments which connect the arachnoid to the subpial tissues. These lining cells reflected thus from the inner layer of the arachnoid become the cells covering the pia mater, which is closely attached to the brain surface dipping down into its many sulci. Between these two membranes is contained the subarachnoid space, which space interspersed with its many trabeculae and the ventricles as well are filled with the cerebrospinal fluid. (The following description of this space is taken from Wood's article.)

The subarachnoid space with its many irregularities was earliest demonstrated by Key and Hetzius in 1875, who by injecting colored coagulating substances into human specimens were enabled to demonstrate and name seven cisterns. The first accurate description was made by Locker and Naffziger in 1924, who used injections of celloidin and camphor dissolved in acetone. The large space at the base of the brain is called the cisterna basalis and for simplicity is further divided into three parts: the pars chiasmatis, the pars interpeduncularis and the pars pontis, lying from front to rear respectively

\*Read before the Kentucky State Medical Association at Lexington, September 7-10, 1931.

and so named for the parts of the brain which form their superior limitations. The pars chiasmatis is the narrowest and deepest portion extending forward for a short distance beneath the frontal lobes to the chiasm, investing it and the infundibulum and continuing along the optic nerve to near the eye balls. Posterior to the pars chiasmatis lies the pars interpeduncularis which extends laterally to the cerebral peduncles and back to the anterior border of the pons, at which point the pars pontis begins, spreading laterally by two large triangular spaces with their apices extending over the cerebropontine angle where it surrounds the seventh, eighth, ninth and tenth nerves and the Gasserian ganglion. This is the widest and shallowest part of the basal cistern. The next portion of the cerebrospinal fluid pathway is the cisterna magna which is continuous laterally with the pontine cistern at the lateral borders of the medulla below and above it lie the inferior posterior surface of the cerebellum and the fourth ventricle.

From these cisterns at the base, the cerebrospinal fluid is dispersed over the cortex through the much narrower cortical subarachnoid space and into the spinal canal along the medulla. This external system is continuous with and communicates with the ventricular spaces by the foramen of Majendie and the two lateral clefts of Luschka into the fourth ventricle, thence through the aqueduct of Sylvius into the third ventricle and on through the two foramina of Munro into each lateral ventricle. That this is all one freely communicating system has often been demonstrated by many investigators by injection of dyes and air.

#### THE CEREBROSPINAL FLUID

The cerebrospinal fluid was first described by Majendie in 1842, who further showed it had definite pressure and a circulation and concluded the whole subarachnoid space to be in open connection. It is a well established fact, by many workers, that the source of this fluid is mainly from the chorioid plexus, lining the central ventricles, supplemented by the perivascular system of the nervous tissue.

Thus one can follow the cerebrospinal fluid from the lateral ventricle, through the foramina of Munro to the third ventricle, thence through the aqueduct of Sylvius to the fourth ventricle to pass into the basal cistern and to be disseminated into the whole subarachnoid space as it envelopes the central system.

Many investigators have thought there existed a definite circulation in the cerebrospinal fluid, but Ernest Sachs<sup>2</sup> and his associates, Wilkins and Sams, in their late researches feel that there is no such circulation. Many have shown that certain dyes injected

at one site will appear at others far distant, Dandy and Blackfan<sup>3</sup> recovering phenolphthalein from the ventricles when injected into lumbar region of the spinal canal and vice versa, but Sachs and his associates think that diffusion alone takes place assisted by gravity and the motion synchronous with and created by respiration and cardiac systole. Some other investigators including Howe<sup>4</sup> feel that if a circulation does exist it is very slow. In conducting these experiments the cortical surface of the dura mater of the brain and spinal cord were exposed in dogs for the study of any circulation by the use of dyes injected under direct vision.

Sachs in this same article speaks of the work of Hill, Weed, Dandy, Howe and others upon their important contribution to the cerebrospinal fluid pressure and quotes Howe as follows: "The normal pressure is maintained by secretion of sufficient cerebrospinal fluid to distend the spinal dura moderately. The intracranial pressure is roughly equal to the venous pressure and within limits variations in the pressure in either cerebrospinal fluid or the venous blood are accompanied by similar directional pressure changes in the fluid."

As to where the spinal fluid is absorbed there is still some disagreement, Cathelin<sup>5</sup>, Papillion and Jippa<sup>6</sup>, claim it is absorbed through the lymphatics, while Weed, Mort, Dandy and Blackfan, Howe, Hill and others think it absorbed into the veins. Weed believes the Pacchionian bodies to be the site of absorption and in addition the lymphatics, while the others think direct absorption into the veins takes place. Dandy and Blackfan and Weed agree that absorption occurs along the entire cerebral nervous system.

Sachs conclusions are of great importance, chiefly because if there is no circulation and only diffusion assisted by gravity, then the more central any injection or drainage is made the more assistance it is likely to be, that is serum injected into the ventricles should be of greater value unless the lumbar region is already infected and according to the same principle, cisternal drainage as advocated by Dandy should become efficacious and lastly since all circulation is induced by a local removal of fluid that only a very small amount of fluid should be removed by spinal tap for diagnosis for fear of further dissemination of the infection. Kolmer says 5cc. of fluid can always be removed safely.

The chemistry of the cerebrospinal fluid is of very great importance since careful study of changes in its chemistry frequently lead to an early diagnosis of meningitis before other signs appear and help also to distinguish between a protective and suppurating lesion. Greenfield<sup>7</sup> gives the following resume of



the chemistry. Normal cerebrospinal fluid which should contain not over 5 to 7 lymphocytes and 1 part to 20,000 of protein, which may not be present on secretion. The saline content is from 700 to 750 milligrams per 100cc, much more than that of the blood and shows no increase as to blood changes. Glucose is present in 50% to 60% of the amount of blood sugar of the same individual and so remains in all conditions except meningitis. Urea is practically the same in the blood and cerebrospinal fluid and any rise above normal in the blood takes place in the fluid. When meningitis is present chlorides are reduced and other acid radicals are increased. So long as meningitis is limited the chlorides show little change but when widespread the chloride content approximates that of the blood. Where the chloride content remains higher than that of the blood it is favorable; where it drops it is unfavorable. Kopetzky<sup>6</sup> also stresses these findings and adds that though both the albumin and globulin contents are also increased in meningitis that it is of little consequence as it occurs in other intracranial conditions.

#### PATHOLOGY

Paths of infection are of great importance.

1. Paths to the middle fossa are through the roofs of the antrum and tympanum by caries or thrombophlebitis of a small vein or through the mastoid cells themselves in adults and in children most frequently through or along veins passing through the petro-squamous suture or by veins from the mastoid through the petrous to its upper surface. Eagleton<sup>7</sup> thinks virtually all middle fossa infections are due to a thrombophlebitis or perivaseculitis and not from caries of the bony plates, which always causes a protective reaction and tends to localize the infection by forming an extradural abscess. 2. Paths to the Posterior Fossa are: (a) Through the posterior wall or cells of the mastoid particularly where infection is present thrombosing the small veins communicating with the intracranial structures; (b) From an infected lateral sinus; (c) Through the internal auditory meatus, secondary to an infected labyrinth and not infrequently from cells in the petrous portion of the temporal bone where such cells surround the bony structure of the internal ear or extend to its tip directly as a cellular extension of the mastoid itself, as has been shown by Eagleton<sup>7</sup>, Kopetzky<sup>8</sup>, Almour<sup>8</sup> and others. An extradural abscess if neglected, wherever it might be, will often produce a meningitis by changes in the contiguous tissues.

Pathologically two types of meningitis are recognized. Serous or sympathetic meningitis which is of a protective type and is due to an inflammation close or adjacent to the

meninges, such as sinus thrombosis, extradural abscess or brain abscess and where large exudation exists exhibits many symptoms of the suppurative type, except the findings in the cerebrospinal fluid. 2. Purulent leptomeningitis or septic meningitis which is a diffuse suppurative inflammation of the arachnoid and pia mater and is brought about by direct extension as described above or by a metastatic infection through the blood stream producing the so-called fulminating type, which is rare. Most all cases show a resistance by the meninges and large quantities of fluid are poured out as a protective measure and from inflammation. This protective activity probably accounts for the remissions so frequently seen in meningitis where the protective influence is able for a few hours to control the infection. In some instances, this protection is so great as to cause the meningitis to become of a subacute or chronic type. Virtually always in its early stages the meningitis is localized at the site of entrance of the infection to a small portion of the adjacent cistern, the pars pontis in the posterior fossa and the pars interpeduncularis in the middle fossa, by adhesions of the arachnoid and pia mater but soon spreads in the cisterns and to the cortex. Even well established meningitis will apparently tend to localize to one side, especially in the middle fossa type.

Fulminating meningitis may be the primary infection, the bacteria reaching the ear and mastoid secondary to it, as was shown by Weed, and Eagleton has found organisms throughout all the nasal sinuses in such a case of pneumococcic meningitis.

#### CEREBROSPINAL FLUID CHANGES IN MENINGITIS

In all types of meningitis the fluid pressure is increased, varying of course according to the severity of the inflammation and the amount of protective reaction. Leighton<sup>9</sup> has estimated that the amount of cerebrospinal fluid secreted in twenty-four hours in suppurative meningitis approximates the output of two healthy kidneys for the same period.

While the normal content of the cerebrospinal fluid is not over seven lymphocytes and rarely over five, any increase in these cells means an irritation and not an infection. but the presence of polynuclear cells always means either suppuration adjacent to the meninges, in which instances the cell count is rarely over 10,000 cells per cubic centimeter with little or no disintegration nor degeneration and no bacteria and as the patient improves a rapid replacement of the polynuclear cells by lymphocytes; or a suppurative meningitis, in which instance the polynuclear cells are often found in enormous numbers many showing degeneration

and disintegration and as a rule bacteria are readily demonstrated both upon smear and culture. When the streptococcus hemolyticus, streptococcus mucosus, pneumococcus or the influenza bacillus are found the outcome is nearly always fatal; while on the presence of the staphylococcus the outcome is more favorable, although only a very few of these recover.

The chemical changes in the cerebrospinal fluid in the presence of suppuration are too little stressed and should be of considerable diagnostic aid. Kopetzky<sup>6</sup> in 1912 called attention to the early decrease or loss of the copper reducing power of the cerebrospinal fluid in suppurative meningitis, in the presence of all organisms which thrive in a carbohydrate medium and he considers this of prime importance and lays little stress upon the globulin increase. The saline content, normally much higher than that of the blood, tends to approach the blood level in this condition. Choline, a product of lecithin degeneration which is present in very small quantity normally and is rapidly absorbed and kept at a minimum, in the presence of bacteria and increase in fluid and pressure with delayed absorption accumulates in greatly increased amounts. This product is very toxic and is thought by most observers to be the chief cause of death. The probable cause for the great prostration and toxicity of suppurative meningitis is because the infective and toxic products are absorbed directly into the blood stream with no filter of gland and lymphatics.

#### BACTERIOLOGY

The predominating organisms in suppurative meningitis are, according to Neal<sup>10</sup> who reviewed 221 cases, as follows: Streptococcus in 123, all of which were hemolytic except one; and in 98 where the pneumococcus was found there were 30 of type I, 17 of type II, 20 of type III and 31 of type IV.

Malis<sup>11</sup> reports two cases of Friedlander bacillus infection, both secondary to otitis media and both of whom died.

The different varieties of the staphylococcus are not infrequent but are more often in cases of traumatic origin. Other organisms are so infrequently found no mention will be made of them.

Hadjopoulos,<sup>12</sup> bacteriologist to the Beth Israel Hospital at New York, has recently reported a review of the infecting organism in cases of acute mastoid disease occurring in the otologic service of Kopetzky and has classified the hemolytic streptococcus as to its oxygen requirements according to Holman's table as an index to the case mortality with very astonishing and interesting findings. He describes first, the obligate aerobic group or those requiring free oxygen, with

twenty-one cases of the anginosus-salivarius group with no complications other than varying degrees of bone necrosis, except in two with sinus phlebitis, all of which recovered; second, in the facultative anaerobic group which can exist in presence of free oxygen the frequens fecalis, there were seven cases, with one sinus thrombosis, all of whom recovered; third, the facultative aerobic group, the oxygen requirements of which group are sufficiently derived from carbohydrate fermentation and protein decomposition. In this last group are found the streptococcus pyogenes and the streptococcus mitis, which in order to obtain their oxygen requirements penetrate the submucosa and stroma and carry with them a very high morbidity and mortality; fifty-eight cases belong to this group, twenty of whom died, five having sinus thrombosis, fourteen meningitis alone or in combination, seven brain abscess all of whom had meningitis save one, one erysipelas and two bronchial pneumonia and of the thirty-eight who recovered, five had sinus thrombosis. In this report are included five cases of type III pneumococcus or streptococcus mucosus infection three of whom died, all with brain abscess and two with meningitis in addition. This report impresses one with the importance of learning at the earliest possible time the type of infection with which one is dealing. Kopetzky says that Hadjopoulos after his bacterial studies, which require about two weeks, can offer distressingly accurate prognostication as to what will happen to any given case and urges that thorough and careful bacterial study be made early in every case of otitis media.

#### SYMPTOMS

Eagleton<sup>7</sup> divides the symptoms into two groups; 1. Systemic manifestations which are: fever, often at first not excessive 101° to 102°, accompanied or preceded by a chilly sensation; this is particularly so in cases of a latent infection which involves the meninges by extension or sudden rupture of an abscess. Headache of a severe character which is made worse on movement, noises, light or any disturbance of the patient and is described as of a bursting character. The headache may be localized when the meningitis is localized and referred to this particular location and as a rule is nocturnal. According to Jenkins in regional meningitis of the middle fossa it is above the infected ear and gets worse with the spread of the infection. Great emphasis is placed by Eagleton,<sup>7</sup> Kopetzky,<sup>8</sup> Almour<sup>8</sup> and others upon definite persistent pain behind the eye as being diagnostic of a localized collection of fluid in the apex of the petrous pyramid. Distention of the veins with some blurring of the discs is often found, rarely a definite



papilledema. Often there is a marked slowing of the pulse rate, though it may not be constant and as a rule it is markedly increased in children. Finally symptoms of profound sepsis, Cheyne-Stokes respiration and death supervene. 2. Local symptoms which are those of any meningitis; rigid neck which occurs earliest in posterior accumulations and is often associated with nystagmus, increased knee jerks, positive Kernig, Brudzinske, Babinski and ankle clonus, any or all of which may be limited to or more evident upon the side of the lesion. Where the pressure is more intense over the speech area definite aphasia and definitely located convulsive attacks referable to definite motor areas often develop. Late general convulsions often occur. Localizing signs rarely occur in posterior fossa invasions because of the rapid spread of the infection.

The symptoms of a meningitis occurring during an acute otitis and mastoiditis in young children with blood stream infections are so merged with those of the original disease that they are difficult to isolate and correlate especially in the early stages and as the organism is in such instances either the hemolytic streptococcus or the streptococcus mucosus capsulatus, better classified as the type III pneumococcus the outcome is virtually always fatal in spite of any procedure. Some of these cases are unquestionably of the fulminating type and others are for a time so confusing with a lesion of the lateral sinus, which in some instances is found to exist in the form of phlebitis rather than a thrombosis, that the diagnosis is rarely made, though strongly suspected, until a sustained high temperature takes the place of one of a remittent septic type and a cloudy spinal fluid containing organisms is found.

#### DIAGNOSIS

That the diagnosis of septic meningitis of any origin must be made before the meningitis becomes generalized all investigators insist, particularly Eagleton,<sup>7</sup> who through his many communications urges the very careful study and analysis of every presenting symptom and a continuous search for some sign which will show or suggest an early localization of the suppurative process. With these facts in view he has arranged the diagnostic signs into two main groups.

1. Posterior Fossa cases which are subdivided into: Labyrinth cases in diagnosing which it must be determined whether or not the labyrinth is functioning and often vertigo, nystagmus and vomiting are prominent symptoms usually associated with violent headache and early rigidity of the neck of a marked degree. The infection in this type is first localized in the lateral portion of the pontine cistern.

2. Cases with caries of the petrous pyramid without labyrinthitis which as a rule follow mastoid operations which do poorly with continuous discharge from the middle ear with headache, as a rule nocturnal and not severe, at which time it is often described as a deep pain behind the eye of the affected side, due to irritation of the ophthalmic division of the fifth nerve as it lies on the petrous tip soon after its origin and a low grade chronic sepsis associated with recurring attacks of rigid neck of a slight degree and sometimes vertigo and vomiting. There is often present a paralysis of the external rectus muscle of the affected side due to pressure or other disturbance of the sixth nerve at the apex of petrous bone. Both Eagleton and Hempstead<sup>13</sup> have described an instance in which the paralysis was of the sixth nerve on the opposite side.

Not infrequently, according to Kopetzky<sup>8</sup>, the middle ear and mastoid have healed before these symptoms present themselves, the discharge which first appears is suddenly profuse and is accompanied by the eye pain or soon followed by it. These symptoms last a varying length of time, in Eagleton's cases from sixteen and forty-six days to be followed by a period of quiescence lasting according to Kopetzky and Almour from five to nineteen days. This period is usually coincident with rupture of the process into the skull and is soon followed by an acute general meningitis. There were no changes in the spinal fluid in Kopetzky's and Almour's series of nine cases until after meningitis developed nor were there eye ground changes.

3. Cases secondary to thrombophlebitis of the lateral sinus are due to the herniation of the Pacchionian bodies with at times exposure of the brain tissue, as demonstrated by Kanders. Eagleton here cautions against any curettage of such a sinus, but better to let the clot slough out in the process of repair. The infection in these cases at first localize about the lateral sinus, more often posterior to it.

II. Middle Fossa Cases are according to Eagleton<sup>7</sup> usually due to retrograde thrombophlebitis of a small vein extending from the bone to the dura and rarely from a caries of the tympanic or antral roofs. The early symptoms of this condition are: pain behind the eye, often above the auricle, external ocular paralysis, irritability to light, slight irregular temperature, slight neck rigidity, slow pulse for a brief period and in some instances irregularity of the visual fields. The spinal fluid at this stage shows only slight increase in pressure, with or without an increased cell count. When infection at this site first occurs it is limited but soon spreads to the cisterna interpeduncularis and rapidly

becomes general. The cases of pyramid abscess start locally on the superior surface of the pyramid and at first are local in the middle fossa.

Kolmer<sup>14</sup> advises that careful cultures should be made of the middle ear secretion and pus from mastoid upon either blood agar or dextrose hormone broth and an exact bacteriological diagnosis made, which should in the presence of the streptococcus and pneumococcus be of greatest assistance in establishing an early diagnosis. The spinal fluid should be repeatedly studied and cultured and if negative, in the presence of grave suspicion, an occipito-atloid puncture should be made to obtain fluid from the cisterna magna which shows changes much earlier.

#### TREATMENT

The following brief history of the treatment of suppurative meningitis is taken from Wood's<sup>1</sup> article referred to above. The treatment of suppurative meningitis has been regarded as surgical since in 1760 Percival Potts, an Englishman, advocated the opening of cranial fractures for drainage at the "point of putrefaction." Little attention was paid to his publication until Samuel W. Gross published in 1873 his experience with wounds of the skull and "effusion of pus into the arachnoid." Von Bergman and Quinke performed ventricular puncture in 1888 for tuberculous meningitis and hydrocephalus to be followed by Mayo Robson a year later who used it in relief of coma in meningitis and was followed by Keen, Kocher and McCosh who applied it in the treatment of meningitis brain tumors and epilepsy.

Wynter, an Englishman, performed the first lumbar puncture for relief of meningitis in 1889, to be followed two years later by Quinke who perfected the method used today.

Ballance did the first occipital operation in 1891 to drain the cisterna magna and Parkin two years later opened and introduced a small capillary tube to cause continuous drainage. To Macewen belongs the credit for any repeated efforts at drainage for suppurative meningitis. He treated twelve cases with single or multiple laminectomies with six recoveries.

Haynes in 1912 revived and devised an improved operation for the drainage of the cisterna magna, but his results and those of Day and Dench were very disappointing.

Rainey and Alford<sup>15</sup> reported two cases of streptococcic meningitis, neither of which had an otitis and one of whom recovered, upon whom they established continuous drainage by laminectomy and rubber tissue drainage and recommended that the procedure be given further trial.

In 1924 Dandy reported four cases treated with continuous drainage of the cisterna magna by the use of small rubber tube, three of which recovered. None of these were of otitic origin.

All authorities agree and insist that an early diagnosis must be made in all cases of suppurative meningitis while the infection is in its incipency and is localized at its primary source and advise, particularly Kolmer and Kopetzky, that all cases of otitis media and mastoiditis be carefully cultured upon proper media, especially in the very acute cases with marked systemic reactions, in order to be forewarned of possible complications.

The diagnosis must be made before the classical symptoms are present and if possible before organisms are found in the spinal fluid and many authorities advocate early occipito-atloid puncture of the cisterna magna in all suspected cases and a careful chemical and bacteriological study of the cerebrospinal fluid obtained where the lumbar fluid is negative. Repeated blood counts should be made in all cases with especial reference to the differential leucocyte count after the technique of von Schilling, which is of great prognostic value. Serous meningitis will in most instances resolve when the primary focus is thoroughly removed but some authorities, notably Hempstead and Kopetzky favor repeated lumbar punctures. Eagleton,<sup>7</sup> who in the last eight to ten years has devoted much time to this condition and reported ten recoveries in 1926, has developed the following plan of treatment to be considered in every case.

1. When to operate: Always as early as possible after diagnosis has been made while the lesion is localized, using every finding to this end and every effort to determine the site of localization.

2. Thorough eradication of the primary focus of infection, including the lateral sinus if it is involved.

3. The evacuation of any infected cerebrospinal fluid from the adjacent basal cistern. For this purpose he has devised his operation<sup>17</sup> for unlocking the petrous pyramid which gives access to both the posterior fossa about the lateral sinus, the mastoid bone and the labyrinthine area including the internal auditory meatus and to the middle fossa above the tympanic and antral roofs and to the superior surface of the petrous pyramid. The last three cases he has operated upon he has cured by using this technique.

4. By putting the parts at rest by fractional ligation of the common carotid artery under local anesthesia, by which before proceeding with the operation he endeavors to



reduce the size of the brain and the intracranial pressure thus decreasing the size of any subsequent hernia and also reduces the hemorrhage to a minimum.

5. His after treatment consists of daily or semi-daily lumbar puncture and the use of frequent transfusions of 200 cc. of whole blood, preferably from an immunized donor. All recovering cases must rest in bed for four to eight weeks.

Spurling<sup>19</sup> reports thirty cases from all causes operated upon with eight recoveries, two of which were streptococcus infections, by the employment of lumbar laminectomy and rubber tissue drainage. Great care must be used to place the drain through a good opening of both the dura and arachnoid well into the subarachnoid space and in addition the use of 4,000cc. to 5,000cc. of fluid each twenty-four hours to maintain a continuous flow of the fluid with repeated changes of large dressings. Where cure is not effected, nor even hoped for, the patient is relieved from the distressing symptoms of intracranial pressure and toxæmia. He also employs repeated transfusions. He believes that should this procedure be instituted with the first signs of meningeal irritation the chances of recovery are much enhanced.

Reddish and Newberger<sup>20</sup> of Lexington report a case of basal fracture with cerebrospinal fluid leakage from the ear as cured by this technique.

In a report of the operations done by Ernest Sachs, Roland Klemme, his associate, details forty cases with seven recoveries, two of which followed mastoid infection and operation. Five of the recovered cases had laminectomies and drainage and two both lumbar and occipital drainage. Of the thirty-three who died, seven with occipital and 26 with lumbar drainage, fourteen were mastoid cases. Klemme emphasises the importance of early operation and gives the operating time in the recovered cases as four and one half hours after diagnosis had been made. Sachs in discussing Klemme's report says, although there appears to be little or no actual circulation in the closed cerebrospinal system, when drainage is established active circulation does take place toward the site of drainage and he advocates lumbar drainage because of its ease of accomplishment and reserves drainage of the cisterna magna for cases which do not drain properly after laminectomy.

Hempstead<sup>13</sup> reports a case of otitic streptococcal meningitis with organisms in the spinal fluid which recovered after repeated lumbar punctures.

Musham<sup>23</sup> reports a case of advanced streptococcal meningitis which recovered after flap drainage of the parietal cortex.

Levy<sup>23</sup> has operated upon two cases using an operation devised by Goerke with one recovery. Goerke reports five cases with two recoveries. This operation is similar to Eagleton's in that an exposure of both fossae is secured after a radical mastoid operation.

Kragnogorski<sup>24</sup> reports nine cases of suppurative epidemic meningitis in children, all of whom recovered without serum, but with the use of temporary spinal drainage with a special canula and apparatus by which pressure can be regulated. He states the lower the pressure the greater the flow and is able to regulate the flow by changing the pressure and vice versa and is also enabled to cause a continuous flow. He also insists upon the ingestion of large amount of fluid. Such a method might have possibilities in any suppurative meningitis.

Kolmer<sup>21</sup> and his associates in the past twelve years have been engaged in extensive animal experimentation in an endeavor to perfect a cure for pneumococcal meningitis, the pus in such instances being too thick for drainage to be of use.

They early determined that the only way to distribute sera or chemicals throughout the subarachnoid space was by injection into the carotid arteries and that the only substances of any merit were some polyvalent serum such as Felton's, and optochin hydrochloride. Kolmer advises the following procedure: In type I infections in adults 10cc. of Felton's serum to which has been added 0.5cc. of 1:100 optochin hydrochloride is injected into each common artery; to be followed immediately by a puncture of the cisterna magna with thorough drainage of the fluid and the injection through the same needle of 3 to 5cc. of the same mixture. Where cistern puncture is not available drainage can be done by spinal puncture with the injection of 10 to 20cc. of the mixture. Spinal drainage is then twice repeated at eight hour intervals.

This whole procedure is done each twenty-four hours for two to five days or longer as indicated. In children one-half of the adult quantity should be used.

He thinks it is best to expose the vessels and place guide ligatures upon them rather than repeated attempts at skin puncture. The same procedure may be used in types II and III, but the amount of serum should be doubled and trebled respectively as the antibody of these types is proportionably less in this serum. Although their experiments with the streptococcus have been very disappointing Kolmer advises the use of scarlet fever serum intracarotidally as probably the best serum therapy to be combined, of course, with drainage.

He states in his conclusions that the daily intracarotid injection of 10cc. of meningo-

coccic serum with spinal drainage and the intraspinal injection of 10 to 30cc. more at daily intervals combined with eight hour spinal puncture has been successful in resistant cases of meningococcic infection and might prove to be of great value.

Kolmer and Amano<sup>21</sup> in their latest report, have suggested that 10cc. of Felton's serum for an adult or 5cc. for a child be given intravenously and repeated intramuscularly on the third day as a prophylactic in known cases of type I pneumococcus infection of the ethmoid and sphenoid sinuses or of the middle ear and mastoid.

Rosenberg and Nottley<sup>25</sup> report a case of recovery from streptococcic meningitis by the use of repeated lumbar punctures and the replacement of the fluid with antistreptococcic serum, preceded by irrigating the canal with 20cc. of 1-4000 aqueous solution of neutral acriflavine. With this report is given a collected list of forty cases of recovery from streptococcus meningitis in twenty-eight of which otitis media was present, in most instances associated with mastoiditis. The author from the literature reviewed could add several cases, notably those mentioned above, to this list of recoveries.

The author<sup>26</sup> has had two cases of streptococcic meningitis in his own practice both of whom had blood stream infection and phlebitis of the lateral sinus with operations, soon to be followed by sudden extensive meningitis. They both had parietal flap operation done, by different surgeons with evacuation of large accumulations and died within a week's time.

The fact that cases have recovered from various methods of treatment and without question some have made spontaneous recoveries should encourage a persistent effort upon our part to relieve any case no matter how desperate. Upon the other hand the realization of the importance of early diagnosis and the very early surgical or serum and drug therapy, as the case may demand, is the only thing which can possibly reduce the mortality in this disease.

The writer wishes to express his appreciation to Drs. Eagleton, Hempstead, Dandy and Sachs and Klemme for their valuable communications and to Dr. Bernard Newberger of Lexington, Kentucky for his translations from the German.

#### BIBLIOGRAPHY

1. Wood, E. L., Archives of Otolaryngol, 9:40, Jan. 1929.
2. Sachs, Ernest, Wilkins H. & Sams, C. F., Arch. of Neural & Psychiat, 12:11, Oct. 24th. Ibid. 23:130 Jan. 1920.
3. Dandy, W. E. & Blackfan, K. D., J. A. M. A., 61:2216, December 20, 1913.
4. Howe, H. S., Arch. Neural & Psychiat, 20:1048, Nov. 1928.
5. Greenfield, J. G., J. Laryngol & Otol. 41:785, Dec. 1928.
6. Kopetzky, S. J., Otologic Surgery, Paul B. Hoeber, New York.
7. Eagleton, W. P., J. A. M. A. 8:1900, Dec. 13, 1924, Ibid. 87:1544, Nov. 6, 1926. Arch. Otolaryngol., 4:163, Aug. 1926, Ibid. 6:60, July 1927; 8:193, Aug. 1928; 10:636, Dec. 1929. J. Laryngol & Otol. Oct. & Nov. 1929 Arch. of Surgery, 20:386, Mch. 1930.
8. Kopetzky, S. J. & Almour, R., Annals of Otol. Rhinol. & Laryngol. 39:996; Dec. 1930. Ibid. 40:157, Mch. 1931 & 40:396, June 1931.
9. Leighton, W. E., Bul. St. Louis Med. Soc. Vol. 25, No. 34, May 1, 1931.
10. Neal, J. B. Arch. Neural & Psychiat 21:451 Feb. 1929.
11. Malis, S., Arch. Otolaryngol, 12:162, Aug. 1930.
12. Hadjopoulos, L. G., Annals Otol. Rhinol & Laryngol, 39:1017, Dec. 1930.
13. Hempstead, B. E., Annal. Otol. Rhinal & Laryngol, 40:542, June 1931.
14. Kolmer, J. A., Arch. Otolaryngol, 3:481, Feb. 1926. Ibid., 9:229, Feb. 1929, 9:428, April 1929; 9:509 May 1929.
15. Rainey, W. K. & Alford, L. B. J. A. M. A., 81:1516, Nov. 3, 1923.
16. Dandy, W. E., Surg. Gyn. & Obs. 39:760, Dec. 1921.
17. Eagleton, W. P., Arch. Otolaryngol 13:386, Mch. 1931.
18. Klemme, R., Bul. St. Louis Med. Soc. Vol. 25, No. 34, May 1, 1931.
19. Spuriin~ R. G., Louisville, Ky. Personal Communication.
20. Reddish, W. D. & Newberger, B., Lexington, Ky. Personal Communications.
21. Kolmer, J. A., & Amano, K. W., Arch. Otolaryngol 13:299, Feb. 1931. Kolmer, J. A., J. A. M. A. 96:1358, April 25, 1931.
22. Muhsam, R. Medizinische Klinik Berhn, 26:535, April 11, 1930.
23. Levy, Alfred, Arch. Otolaryngol, Vol. 7:614, June 1928.
24. Kragnogorski, K., Jahr. f. Kinderheilk 1929, 124:245.
25. Rosenberg, L. and Nottley, H. W., Annals of Internal Medicine. Vol. 4:1154, Mch. 1931.
26. Marks. S. B., Southern Med. Jour. Vol. 23:636, July 1930.

**Surgical Treatment of Duodenal Ulcer**—Pannett's experience in the treatment of duodenal ulcer corroborates that of other surgeons that, like the analogous case of gastric ulcer, local removal is insufficient. It is necessary to take away a certain portion of the stomach as well. But even this will not certainly protect every patient from recurrent ulcer, though such an ulcer is excessively rare. Although more recurrent ulcers have been reported after the second operation of Billroth, the author has not had one in his series, probably because more of the antrum is taken away than in the small first operation of Billroth done in his earlier cases. However, a man of 45 came under his observation who two years before had had a posterior gastrojejunostomy for a duodenal ulcer. No relief occurred, so the pylorus was resected eight months later. Four months after this an extensive Polya resection was performed for a gastrojejunal ulcer. Less than a year later he came under the author's care. He was emaciated and evidently had a large gastrocolic fistula, with fecal vomiting and diarrhea. At operation it was impossible to remedy this, as the marginal ulceration had been so extensive as to lay the stomach and colon into one cavity. Of the patients whose complaint is unrelieved by medical treatment, 69 per cent will be cured by gastrojejunostomy and 81 per cent by gastroduodenal resection.



## ORATION IN MEDICINE LIFE EXTENSION\*

B. S. RUTHERFORD, M. D.

Bowling Green

It is indeed an honor and pleasure to be permitted to address the members of this organization, whom I regard as representing the flower of Kentucky's manhood. As I look into your faces, I see an unmistakable evidence of a spirit of congeniality and fellowship which I believe now prevails throughout the state and perhaps the nation. We no longer regard our fellow practitioners as competitors but co-workers in a great and noble cause.

It is true that we have our heated discussions in our associations with each other, but these are always in the best of spirit and good will. For instance, there is my friend Blackburn, whom I see in the audience; we both practice in Bowling Green. Blackburn specializes in surgery; I practice general medicine. In a very heated discussion which we recently had in which Blackburn extolled the virtues of surgery and I that of medicine, he asked me why I had chosen to be a general practitioner while surgery with its brilliant achievements was inviting all to enter its lucrative field.

I said, "Blackburn, I was reared in an atmosphere of general medicine, as my father, grandfather, and two uncles were general practitioners."

"Oh, yes," he said, "I see, it is a case of heredity and environment. Well, Rutherford," he said, "let me ask you a question. Suppose your father, grandfather, and two uncles has been jackasses, and you had been reared with young jackasses, and even taught to bray like a jackass, what would you have been?"

I said, "Under those conditions, Blackburn, I would undoubtedly have been a surgeon."

There are members of the medical profession who are eminent in authority who believe the expectancy of life will not be greatly lengthened; that men and women, as the centuries go by, will continue to die of old age between the ages of seventy and ninety and but few will live to be older. There are others equally as eminent who believe that when we shall have become more thoroughly organized in the work of health conservation and are in a position to apply more vigorously the methods now at our command and bring into requisition others of far greater

importance which are yet to be discovered, the expectancy of life will be materially lengthened.

Most of the diseases to which humanity is heir are classified as preventable. A disease which is preventable can and should be prevented. Diseases which are not considered as preventable will become so when their causes are ascertained, and methods of prevention are discovered.

The medical profession for the last few years has made a world-wide war on death and diseases; and though we are in the incipency of this work the results obtained have indeed been phenomenal. We have banished from our midst Asiatic Cholera for nearly sixty years. This disease once devastated our country with a mortality that was indeed pathetic. Diphtheria and Scarlet Fever have been largely robbed of their terrors, as we have remedies which will not only cure but prevent them and with which we hope ultimately to eradicate them. Since we have learned the cause of Typhoid Fever, and instituted measures to prevent its occurrence, the disease has been reduced in its frequency eight-five to ninety per cent. Infant mortality has been reduced more than fifty per cent. The frequency of Tuberculosis has been reduced by more than one-half in its occurrence, and many cases are being cured. New hope and cheer has been given to all those who suffer with Pernicious Anemia and Diabetes Mellitus. In fact, almost every disease which is classified as preventable has yielded to preventive measures until the results obtained are far better than one expected in so short a time.

Statistics show that, as a result of our recent efforts in life extension, the average life of man has been extended twenty years in the last third of a century. We are only partially organized in the work of health conservation. Can we not reasonably anticipate far greater results when the organization shall have become more complete? When every county in the nation shall have a health unit composed of physicians and nurses thoroughly trained in the line of preventive medicine; when every school shall have incorporated into its curriculum as the most important subject to be taught, the principles of health; we will soon have a people well instructed along these lines and fully imbued with the importance of carrying out these instructions and co-operating with the medical profession in the prevention of diseases.

We will find that heart disease, and other diseases which are secondary in their nature and have failed to yield to our efforts, will become far less frequent in their occurrence when people have been taught the importance

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of an annual or semi-annual examination, whereby such foci of infection which are frequently responsible for these conditions may be detected and removed before their deadly toxins have done irreparable injuries to these delicate structures.

It is thought by the majority of the medical profession that every hormone peculiar to each endocrine gland will be isolated and brought to bear in treating human ills, by which we can supply deficiencies and meet indications of vital importance which so far have been beyond control.

It is now claimed by biologists that the cells of the human body are immortal and should never die, provided that they are not subjected to accident or injury. Various men of research, after careful methods of experimentation over a period of years, have arrived at this conclusion. Dr. Carrol, of the Rockefeller Institute, in 1912 placed a small portion of a chicken heart where it could not be subjected to any form of injury or infection. Those muscular fibers are alive today and will, perhaps, live indefinitely if they receive the same treatment. This is the most sensational conclusion that science has reached. All of these studies are wonderfully suggestive for the future, although for the present far beyond the range of any practical application. It would seem that biologists are gradually surrendering the idea of any natural death, or life span, and reaching instead the conclusion that all deaths are accidental.

When one contracts Pneumonia or any infectious disease, the germs which produce the disease immediately begin to elaborate a toxin. If this toxin is not neutralized or destroyed by antitoxins either naturally or artificially supplied, it will unite with the body cells and result in their destruction; a sufficient number of this will result in the death of the individual, the patient losing his life by injury or accident. Had the patient not contracted this disease, he, of course would not die from this cause. This can be said of any disease. Suppose the causes of every disease should be removed, then deaths from such causes would cease to occur, which suggests the wonderful possibilities that we may anticipate as a result of our efforts in health conservation and life extension.

It may be argued that men and women will wear out and die of old age between the ages of seventy and ninety. They may be worn out. Their powers of resistance may have reached their limit, continuously combatting factors deleterious to their physical welfare, factors that can and will be removed in the process of health conservation. I challenge the statement that they die of old age and venture the prediction which has

been made by men of authority, that within another century men and women at that age will be in the prime of life, at which time the average life of man will be near the century mark.

We observe a presumably old man, who has reached the age of eighty-five or ninety years. His tottering step, stooped form, and palsied body indicate that he is nearing the end of his existence; his contorted features and meaningless stare, the advance of senile dementia. In fact, he possesses all the attributes so tragically ascribed to him in Markham's "Man With the Hoe." In this poem, which rendered him famous, Markham describes him as

Bowed by the weight of centuries he leans  
Upon his hoe and gazes on the ground,  
The emptiness of ages in his face,  
And on his back the burden of the world.  
Who made him dead to rapture and despair,  
A thing that grieves not and that never hopes.  
Stolid and stunned, a brother to the ox?  
Who loosened and let down this brutal jaw?  
Whose was the hand that slanted back this  
brow?  
Whose breath blew out the light within this  
brain?

Is this the Thing the Lord God made and  
gave  
To have dominion over sea and land;  
To trace the stars and search the heavens for  
power;  
To feel the passion of Eternity?  
Is this the dream He dreamed who shaped  
the suns  
And marked their ways upon the ancient  
deep?  
Down all the caverns of Hell to their last gulf  
There is no shape more terrible than this—  
More tongued with censure of the world's  
blind greed—  
More filled with signs and portents for the  
soul  
More packed with danger to the universe.

Viewing him in this plight, we call him old; which is not true. He is only tired, tired of fighting the battles of life. When he entered this life, there immediately ensued a conflict within his system between his natural powers of immunity and the germs of disease and other factors detrimental to his physical welfare. This battle continues from the cradle to the grave, during which time there occurs an occasional exacerbation, when the conflict becomes fierce and taxes to the utmost his powers of physical endurance. That is when he may have an attack of pneumonia or other disease which weakens his constitution and shortens the span of life. Should



we view a battlefield just after an engagement, we would find the ground strewn with dead, dying, and injured, all of whom would be victims of accident and injury.

Should we by autopsy, after this man's death, view the battlefield of his physical engagement, we would find on every hand evidence of accident and injury. We would find his arteries hardened and diseased because of injury received during the conflict. We would find the bulwarks of his defensive forces battle-scarred and rendered inefficient by the continuous bombardment to which they had been subjected. We would find that his ductless glands, because of injury, had failed to furnish the necessary secretion to harmonize the functional activity of the tissues and organs of the body. With this picture before us, we would be bound to agree with the biologist that this man died of injury and not old age, as the cells under favorable environments are immortal, and there is no natural span of life. Our purpose is to remove these various causes of injury by abolishing diseases and utilizing every factor that is now and that will be at our command in the great work of health conservation.

To conclude that there will be no material improvement in life expectancy is but to admit that we have reached the acme of our achievements and that we may expect but slight results from future effort in the work that we have so successfully begun. I realize that my optimism in regard to life extension may suggest a utopian dream too good to come true. But we can not deny statistics which show that twenty years have been added to the average life of men in the third of a century. In the midst of our brilliant achievements, with our organization becoming more and more complete, why should we stop here? We had as well predict the cessation of activities of any other or all of the world's scientific endeavors as that of medicine.

Let us consider a few of the accomplishments that have been achieved outside of the medical profession in the last few years. In so doing, we must concede that medicine has kept and will ever keep pace. We have harnessed electricity, and it does our bidding as a true and faithful servant, entering into almost every phase of industrial activity, facilitating business, and lessening the drudgery of humanity. We have belted the globe with electrical wires over which messages can be sent to the remotest part of the world. By wireless telegraphy, a message sent in this way will leap into space and, without any artificial means of transit, will be carried on the waves of the ether with unerring accuracy to its place of destination across continents and seas. Who would have thought

thirty years ago that a great car equipped with modern conveniences of travel would defy the laws of gravitation and, with a hundred passengers on board, arise in mid-air like a great bird of flight and pursue its course around the world? Ask the geniuses of the age, men who have been largely responsible for these progressive changes, if there will be further progress. They will assure us that future accomplishments will far exceed any we have ever achieved; that advantages we now enjoy and think have been perfected to the highest degree attainable will become obsolete and abandoned because of improvements which will yet be made.

Ask the men of the medical profession, men of research who are spending their lives delving in the latest resources of nature what possibilities lie ahead for life extension. They will tell you that success in life extension will be in proportion to the success attained in abolishing diseases and removing the various factors which sap the vitality of man and result in premature senility.

My views on this subject are not prophetic visions of an idle fancy, but analytical deductions, predicated on the wonderful progress which is now being made. But there has never been a prediction of future accomplishments that far exceeded contemporary achievements that was not doubted. There has never been an important discovery in medicine which was not doubted even by physicians when proclaimed to the world until by practical demonstration, it was proved to be true.

In conclusion, may I state that the leading thought I have endeavored to express in this paper is that of health conservation, which is the most important procedure we can take in life extension. We know that many deaths which occur past sixty are due to cardiovascular renal disease and that certain factors, such as the excesses of life and immoderate living, contribute to this end. If people could be fully impressed with the importance of eliminating these factors and live as they should, a great deal could be accomplished in deferring old age and promoting life extension.

To those of you who have passed the meridian of life and upon whom time has left its mark, may I admonish you to maintain a spirit of optimism and never even admit to yourselves that you are old, for occasions will arise which will convince you that you are not so old after all. There was once quite an old gentleman who boarded a street car and sat down on the only vacant seat. In a few minutes a young lady came in with rosy cheeks and ruby lips and all of the charms and vivacity of youth. There was not a vacant seat in the car. The old gentleman

said, "Sister, sit on my lap. I am an old man and nothing will be thought of it." She accepted his invitation. In a few minutes he touched her on the arm and said, "Sister, you will have to get up, I am not as old as I thought I was."

## ORIGINAL ARTICLES

### EPIDEMIOLOGY IN COMMUNICABLE DISEASE CONTROL\*

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Epidemiology, so far as it concerns the county health officer, simply means the technique of controlling communicable diseases in his territory. If such technique is to be effective, it must be modern and applied with skill and intelligence. Obsolete practices and careless, slipshod methods are not only ineffective, but frequently detrimental, in that they are misleading and often give people a false sense of security.

Since at least 60% of the work of the county health officer still has to do with the control of communicable diseases which invade his district, it is of utmost importance that he possess the fundamental qualifications necessary in coping successfully with this problem. In order to conduct an epidemiological investigation or to interpret the data resulting from such an investigation, the health officer should have a thorough knowledge of communicable diseases; he should know more about these diseases than the general practitioner. His status in the community as a communicable disease specialist should be such that his opinion as to diagnosis, sources of infection, and control measures is acceptable to his professional associates, not because of his official position, but because it is known that he is qualified by study and observation.

In this connection permit me to direct your attention to the Public Health Manual of the State Board of Health of Kentucky. Pages 120 to 191, inclusive, relate to the control of communicable diseases and set forth the following information:

1. A list of diseases declared dangerous to public health and required by law to be reported.

2. Rules and Regulations of the State and Local Boards of Health relative to reporting communicable diseases.

3. A brief outline as to the present status of our knowledge with regard to the epidemi-

ology of each one of the common communicable diseases, as compiled and approved by the United States Public Health Service and the State Board of Health of Kentucky.

4. Standard Rules and Regulations for the control of these communicable diseases as established by "group opinion" of competent medical and public health authorities, and approved and adopted by the United States Public Health Service, the State Board of Health and the Kentucky State Medical Association.

Every health officer should be thoroughly conversant with this information, and the observance of these Rules and Regulations by every county board of health and every health officer, as a basis for their administrative procedure in the control of communicable disease, is urgently recommended. By so doing your decisions will have the force of competent authority (group opinion) behind them.

Of course it must be acknowledged that it is difficult and often impossible to make a standard set of regulations fit a whole state or even an entire county. Communicable disease problems in one section differ in many respects from those in another. Likewise the populations differ considerably, in regard to composition, general intelligence, habits of living and etc. A stereotyped set of procedures cannot be applied to all situations but each one must be treated more or less individually. Hence, it will always be necessary to adapt and adjust standard regulations to a local situation.

Utilizing the standard set of regulations as a basis, however, the health officer can work out his local policies, with regard to emphasis and enforcement, in such a way as will serve the greatest good and secure the maximum results with a minimum of effort and opposition. He must make his communicable disease program as effective as possible, under local conditions, with the least expenditure of time. If such a constructive program is to be worked out, he must have not only the standard set of regulations for administrative guidance and a thorough knowledge of the local situation, but in addition, he must have a clear and thorough understanding of the present status of knowledge with regard to the epidemiology of each one of the common communicable diseases with which he has to deal.

The next essential for any health officer in the control of preventable disease, is a prompt knowledge of all cases in his locality. Hence the next important step essential to a communicable disease program is proper organization of sources of information. A competent intelligence service is just as necessary to a health unit as it is to a field army. No

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army can gain a victory unless it has the necessary information as regards the enemy, and neither can the inhabitants of a state be protected from preventable disease unless the persons given that responsibility have accurate information on which to base their action. Unless a health officer is constantly aware of what is going on in his territory, he will not know when, how or where to strike the enemy with most effect.

Information concerning the prevalence of disease may come from several sources, the most important of which are as follows:

1. Physicians' reports.
2. Death certificates.
3. Reports of laboratory examinations.
4. Reports of school teachers.
5. Reports of interested laymen.
6. Reports of members of health unit.

The most important and dependable source of information is from physicians. This channel should receive very careful attention and nurturing.

No one method has yet been discovered for securing immediate and complete notification of all cases of reportable disease from all physicians. However, certain general principles which are more or less universally applicable may be laid down.

1. Cordial personal relationship between the health officer and his medical profession is of paramount importance. Social mindedness of the local profession must be cultivated and they must be convinced of the importance of public health work and that in the long run it is in their own interest. Of course it must be realized that in many sections this work is new and that it takes time to establish a health unit and build up the confidence of the local profession.

2. Demands made upon the physician must be reasonable. The health officer should ask only the simplest data, such as the disease, name of patient, address, race, sex and age. This is essentially the information called for on the morbidity report cards now in use throughout the state. Of course, when special investigations are being made, other data will be necessary.

3. Quarantine regulations should be reasonable. Unnecessary hardships, restrictions and inconveniences imposed upon families will discourage physicians from reporting and at the same time encourage the people to employ the physician who does not report.

4. Regularity of stimulation is often helpful. Many physicians who are willing to report, simply delay and postpone the matter until it slips from their mind, or as so frequently happens, the physician sits down to report his case and finds that the report card has been mislaid. As a result the report

is often neglected. Some system of sending physicians the report cards on the same day of each week and asking them to check up for the past week, would undoubtedly prove valuable.

5. Some plan of follow-up should be carried out. Each case reported should receive attention. This activity will be considered more in detail further on.

6. Service to physicians, through the laboratory, by consultation, and in other ways, should be extended as far as possible. This in turn puts them under obligation to report, and affords a splendid opportunity of establishing a cordial and co-operative relationship with them. Do something for your physicians and let them know that you are interested in their problems and you will have little difficulty in getting their reports of communicable diseases.

7. Reporting of communicable disease should be voluntary, if it is to be satisfactory. However, physicians are required by law to send in information relative to cases of communicable disease, and at times it may be helpful to remind them of this fact.

With the above facts in mind, constant but tactful pressure must be constantly brought to bear on the local profession until their full co-operation in the matter of reporting, is obtained.

Reports from physicians relative to the prevalence of communicable diseases should be supplemented from all other sources available. The information recorded on death certificates sometimes gives a lead which will disclose an important situation. Death certificates are available to all health officers through the local registrar. More extensive use of this information should prove helpful.

Duplicate copies of all reports to local physicians from public health laboratories should be furnished the health officer for his information. At present this is not being carried out in the state, but Doctor South assures me, that so far as the State Board of Health Laboratory is concerned, this service will be rendered to health officers in the near future.

By encouraging cordial relations and enlarging the zone of contact, useful tips as regards communicable disease prevalence will often come to members of a health unit from school teachers and interested citizens. Every health officer should make it generally known to the people under his jurisdiction, that the law not only requires physicians to report their cases of communicable diseases to the health department, but every person, who knows of or suspects a case of any of these diseases, is required by law to report this fact to the local health officer.

In addition to the information regarding

the prevalence of disease, the health officer should also keep himself constantly informed with regard to the vehicles of transmission, that is the condition of water supplies, eating places, soda fountains, the dairy situation and sewage disposal; hence, the importance of the sanitary survey and other activities in relation to sanitation.

Following the organization of the sources of information as just considered, the next important step in a communicable disease program is proper provision for recording, analyzing and utilization of this information with the least expenditure of effort and clerical expense. The whole object of collecting information is for the purpose of keeping the health officer continuously aware of the whole situation in his county and enabling him to know immediately of any unusual disease prevalence.

The primary object of requiring a physician or other person to report communicable disease is to notify the local health authority that a case or suspected case has occurred in a certain locality. This notification should receive immediate recognition by some type of follow-up from the health department. In most instances this will mean a personal visit by the health officer himself, for the purpose of confirming a diagnosis and obtaining complete information about the situation, the source of infection, the likelihood of further spread and the best means of preventing this. Occasionally it may be only necessary to deliver routine instructions and placard the house, and this duty can be turned over to an assistant. The point to be emphasized is this—the report of a case of contagious disease is a notification which should be followed by action from the health department.

After notification has received attention the next step is to make provision for recording and filing of data. This is an important problem, but unfortunately one which too frequently is sadly neglected. Of course, I can appreciate the difficulties that are encountered by health officers in connection with clerical work, however, I feel that in most instances more could be done in this connection. While record keeping is more or less an individual problem, yet it seems to me that some attempt at uniformity would be advantageous. Certainly some health officers have better systems than others. This is a matter that could be discussed with profit at regional health conferences. Time and effort are often spared in having a well thought out, systematic and workable procedure of record keeping. In this way data may be accumulated which will be useful when similar cases occur in the future. Furthermore, data will be accessible and can

be readily analyzed at any time it is desired to make studies of communicable disease in the county.

Spot maps and graphs are frequently very helpful in enabling one to visualize a situation. Spot maps are of particular value in visualizing geographic distributions. The prevalence of various communicable diseases in different parts of the county can thus be recorded. This is of especial value in diseases which have a more or less focal distribution, such as typhoid fever and malaria. Also, spot maps are often helpful in keeping track of administrative details. For example, a red tack may be used to indicate a new report of a case of scarlet fever. When this case has been visited and properly quarantined, the red tack may be replaced by a blue one, or a tack with a celluloid top may be used, on which is recorded the date of the release visit to be made. Finally a yellow tack is left in place to mark the location of a discharged case.

Graphs are of particular value in following the trend of a disease, and are especially applicable to those diseases which occur with more or less regularity from year to year, with occasional years of epidemic spread. The usual method is to plot the seasonal curve of the disease by months, according to the number of reported cases. The curve for the previous year or for several previous years is plotted as a "Normal." As the reported cases of this disease are tabulated each week or month for the current year, they are plotted on the chart and their relation to the "Normal" becomes apparent.

Happenings in connection with milk and water supplies can also be recorded graphically and it is always helpful for health officers to do this in order that they may be on their guard against probable outbreaks of communicable disease from these sources.

Having considered the general aspects of epidemiology in communicable disease control, let us next consider the special epidemiological investigation.

When an analysis of communicable disease reports indicates the presence of an uncommon disease or of an unusual prevalence (epidemic) of a common disease, the health officer is called upon to make a special investigation. In a general way the object of such an investigation is to establish the source of the infection, and where possible the route by which it travelled from the source to reach the patient—in order that proper measures may be instituted to prevent further spread.

The problem may be quite simple, as is usually the case with diseases transmitted by direct contact, as for instance with smallpox, chickenpox and measles, where the life of the



virus outside the human body is very short and nearly all cases recognized; it is simply a matter of tracing contact with a previously known case.

On the other hand, with those diseases in which there are healthy carriers, mild unrecognized cases, and particularly where the virus may live for a considerable length of time outside the body and be transmitted by some vehicle such as water, milk, or other food, or undergo development in the body of some other host—insect-borne—the situation becomes exceedingly complex. It may be impossible to trace back the course of events to the source in any individual case. However, when data has been collected on a number of cases, it may be discovered that all these cases give a similar history with regard to some one factor—the common factor—as drinking the same milk, obtaining their water from the same polluted well, attending the same church supper, employing the same physician, etc.

Thus in working out a typhoid outbreak, similar data is obtained from each case, regarding water supply, milk supply and food supply. Comparison is then made of the various groupings possible, the incidence of typhoid among those using the city water supply is compared to the incidence among those having private well supplies, the incidence of typhoid among the customers of a certain dairy is compared to the incidence among customers of the other dairies serving the same area, the incidence of typhoid among those who attended a certain church supper is compared with the incidence among members of the same congregation who did not attend the supper, etc. In each instance it would be impossible to incriminate the vehicle of infection from the investigation of a single case, but when a group of cases have occurred, and all the pertinent data regarding each one obtained, it may be possible to discover a COMMON FACTOR. This common factor then, serves as a point of departure, and evidence is gathered to definitely establish its responsibility.

As a matter of practical experience it has been found of great value, when investigating epidemic disease, to utilize an EPIDEMIOLOGICAL CASE CARD. Of course, these case cards necessarily vary with the disease under consideration. On this card are included all the items of information necessary to locate the cases as to time, place and person. to establish the diagnosis, and with regard to various possible sources of infection. This insures a systematic and uniform collection of data on each case. It is important that this information be obtained as soon as possible after the case occurs and while the situation is fresh in the mind of the patient.

As the case cards are collected, they are analyzed in such a way as to discover all the possible groupings of the cases—race, sex, age, geographic location, time of onset, water supply, milk supply, common eating places, etc. Groupings that appear to be significant are then selected for more careful examination—particularly those groups in which the epidemic was most severe, and any further investigation suggested by this information is taken. Finally, bringing into consideration all that is known about the particular disease under consideration, a hypothesis of causation, source and, if possible vehicle of transmission, is formulated. This hypothesis is tested by all lines of evidence available, and a final opinion formed as to the probability of its correctness.

Thus it is seen that when communicable disease prevalence reaches epidemic proportions, special problems in connection with controlling the outbreak, present themselves. The first step in such a control program is the intelligent and skilled investigation of the known cases with certain definite objects in view. These objects are:

- 1st. Verification of the diagnosis.
- 2nd. To collect data leading to the discovery of the source.
- 3rd. To ascertain to whom the disease may have been communicated—that is the contacts both of the source and the reported case.
- 4th. To so instruct those concerned as to prevent further transmission of the disease, which instruction includes proper methods of disinfection, the establishment of isolation, quarantine of premises, or personal quarantine.

An investigation of this kind must be approached with an open mind. If the source of infection is looked upon as a profound mystery and incapable of solution, there is little use of making an investigation at all. On the other hand the health officer must not be satisfied with any guess as to where the infection arose but must make a thorough effort to locate the source.

One of the most important items in connection with an epidemiological investigation is to establish the real date of onset of the various cases. This date as reported by physicians is invariably wrong and needs correction. In many communities the desire is great to show that the case is an imported one, but the real effort should be to get at the facts, for that is the object of the investigation.

Suppose a case of typhoid fever is reported and the date of onset is given as June 20th, and it is known that the patient was on a visit out of town the week of June 9th. If the date of onset, June 20th, is considered

correct, it may be readily assumed that the infection was received during this out of town visit. Careful questioning, however, may disclose that on Wednesday, June 12th, while away from home, the patient was not feeling well, in fact, that on the second day of the visit, Monday, June 10th, the patient first began to complain and that really the visit was cut short on account of the beginning of the illness. If June 10th is finally settled on as the date of onset, instead of June 20th, then taking into consideration the incubation period of typhoid, 7 to 21 days, the infection must have been received before the patient left for the visit, and the case instead of being one of imported infection is really a resident case.

In the case of scarlet fever, suppose the reported date of onset is Monday. Inquiry may develop the fact that the patient was really taken sick, in school, on Friday, which constitutes the real date of onset and makes prominent the further fact that the school intimates have been exposed. In scarlet fever, as in many other diseases, the date of onset makes a sharp line of demarcation in the associates of the case. Those with whom the case associated before the date of onset must contain the individual from whom the infection was received; those with whom the case associated after the onset and up to the time of isolation, contain the persons in whom the disease may be expected to develop later.

Another pitfall that is frequently encountered is to condemn a milk supply unjustly. In the investigation of a series of cases of typhoid, diphtheria, or scarlet fever, it may be noted that a considerable majority have used a certain milk during the period when the infection must have been received. The conclusion is sometimes jumped at that the outbreak must be milk-borne, and that the other cases may have been accidental users of the supply. Investigation frequently stops at a point like this, rendering a great injustice to innocent parties. Further inquiry may show that the suspected milk supply is used by the greater part of the community, and that the proportion of the cases using this milk is not greater than the proportion of the population using the milk, and therefore the milk hypothesis fails. If a milk dealer supplies half of the people in a locality, his product is, generally speaking, not open to suspicion unless more than half of the cases are users of that milk.

Another item of importance in connection with the milk supply is to make sure that the milk under consideration is that which was consumed at the time the infection was received. In a case of typhoid fever for instance, the milk supply in which the epide-

miologist is interested is the milk used one to three weeks prior to the date of onset.

Thus it is seen that in making an epidemiological investigation it is the whole picture that is wanted. The study must proceed in a systematic way and all factors that might have a bearing on the situation, considered. In each instance certain facts have to be borne in mind—the particular disease, its incubation period, the period of infectivity, the mode of possible transmission (water, milk, other food, flies, direct contact carriers), etc. Facts as they really are, pertinent facts, are what are wanted, and it is only when the health officer is in possession of such facts that adequate and effective control measures can be instituted.

Quite frequently it happens that when representatives of the State Board of Health are called upon to assist health officers with communicable disease problems, very little in the way of definitely recorded information is available. In many instances the health officer has but a very superficial knowledge of the situation and at times assumes that it is the problem of the State Board of Health to obtain the facts and institute control measures. Such an attitude results not only in economic loss but what is more important, delay in bringing the disease under control.

The responsibility of controlling epidemic disease, within a county, rests with the local board of health. The county health officer as the executive representative of this board, must assume this responsibility. Whenever cases of communicable diseases appear, they should be investigated promptly and control measures instituted without delay. Representatives of the State Board of Health are anxious, whenever possible, to cooperate, assist and advise in connection with such problems; this is their purpose and function, but not to relieve the health officer of his responsibility.

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**Temperature Reaction Following Subtotal Thyroidectomy** — Lerman says that the degree and duration of the temperature reaction following subtotal thyroidectomy for exophthalmic goiter does not bear any relationship to the severity of the disease as judged from the average initial metabolic rate. This reaction is not influenced by the degree of fever present before operation. A slight elevation of temperature, even though it is associated with a mild, protracted upper respiratory infection, is no contraindication to operation. The maximum height of the postoperative temperature reaction does not vary with the season of the year, but the duration of the reaction is definitely longer in the late winter and early spring than in the late summer and early fall.



SYMPOSIUM ON ORTHOPEDIC  
SURGERYPRE-SCHOOL POSTURE, A PROBLEM  
IN PROPHYLAXIS\*HARRY GOLDBERG, M. D.  
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In reviewing the literature, one notices that the posture of pre-school children has received but little attention. There is no doubt that the previous attempts to check the many postural defects in school children and adults by school inspection have fallen short of expectations. This suggests that these defects have their beginning during the first few years of life. Constant observation of the posture of the pre-school children to discover and correct any inclination to faulty body mechanics before they become habits, resulting in malposture or curvature, should be brought to the attention of the parents and the general practitioner.

The normal posture is the end result of a long continued process of adaptation from a quadrupedal to the bipedalistic balance of man. One must consider the posture of an individual in its relation to the line of gravity to obtain a general conception of what constitutes good, fair, or bad posture. One must understand the three cardinal planes of the body to visualize the line and the center of gravity. First, the cardinal sagittal plane, is a plane which divides the body into symmetrical halves. Second, the cardinal frontal plane, is a plane which cuts the body into an anterior and a posterior half. Third, the cardinal horizontal or transverse plane, which likewise cuts the body into equal halves, is situated about the level of the fourth lumbar vertebra.

The intersection of the cardinal sagittal plane with the cardinal frontal plane of the body, each at right angles to the other, produces a line, which is the line of gravity. The intersection of all three cardinal planes of the body, each at right angles to the other, produces a point, which is the center of gravity.

When the head and shoulders of a normal individual are in line with the pelvis, and all three in line with the feet, line of gravity will be seen, projected upward from the ground, to pass through the ankle joint, slightly in front of the knee joint, just behind the hip joint axis, then through the sacro-iliac articulation, posterior to the bodies of the lumbar vertebrae, intersects the dorso-lumbar junction, lies in front of the dorsal vertebral bodies, then intersects the cervico-dorsal junction, lies behind the

cervical vertebral bodies, and strikes near the mastoid process.

At birth, the spine starts from a single curve of convexity to permit the heart and thoracic viscera to function, but becomes modified as the child commences to raise its head and look forward, and as a result of static function, the cervical curvature develops. When the infant assumes the sitting posture, the lumbar curvature develops. Later, due to the upright standing position, there is a resultant inclination of the pelvis, and an increase in the lumbo-sacral angle. The entire spine then assumes its normal S-shape. One must bear in mind that there are physiological variations in the inclination of the pelvis, also in the configuration of the hips, and in the angle between the femur and the knees.

The spine can be compared to a curved rod, which creates stability, and in which there is a mutual compensation between the curves, to prevent fore or back deflection of the line of gravity. Stability is the chief mechanical requirement placed upon the flexible spine. In a normal and healthy spine, there is the ability to return to symmetry after the assumption of any asymmetrical position.

To the normal condition of the spine as just described, a determining factor is added which may result in curvature or malposture. Thus, congenital aberrations may be present in the spine. The musculature may be pathologically weakened with softness and pliability of the bones, such as seen in rickets. We may have a weakened musculature, the cause of which is very often undetermined, the bones being normal, but in which the force of gravity seems to overcome the resistance of the body.

It will be seen, that these cases which have a determining factor, before becoming pathological, go through a latent stage. Thus, the prescoliotic stage is considered by Dr. A. Steindler, as a clinical period of latency during which the underlying pathological conditions, such as congenital malformations, rickets, habitual posture, etc., are present, but no unmistakable signs of scoliosis have appeared. The recognition of this prescoliotic stage is of the greatest importance, because it is during this period, and not in the early stages of deformity, that prophylaxis can be managed effectually.

A prescoliotic stage is illustrated in a child with poor erectors of the trunk who inclines his body forward when sitting. The attitude assumed is nature's position of rest and relaxation. This attitude predisposes the child toward a developing lateral deformity. In the prescoliotic stage are also seen conditions, in which abnormal attitudes are assumed.

\*Read before Jefferson County Medical Society, June 15, 1931.

which are asymmetrical, but assumed only momentarily, and as yet can return to the normal. As time goes on, the normal position is assumed with increasing effort. If these abnormal attitudes are neglected, manifest evidence of deformity will make its appearance. The antero-posterior deformities of small children are really prescoliotic stages and one should be on guard for these deformities. One of the early signs of spinal rickets is an antero-posterior curvature in the lower dorsal vertebrae, occurring at the time when the sitting attitude is assumed. The subsequent developing musculature may straighten out such a posture, or it may be compensated for by a converse curve which develops below the first curve. The round and hollow back is an example of the latter. Occasionally, the musculature is too weak to effect this compensatory adjustment. According to Farkas, in these cases where the musculature is too weak to effect compensatory adjustment, the body automatically rotates around to counteract and check the tendency to forward flexion, so that the flexion deformity existing in the lower dorsal and lumbar spine, by virtue of this twisting motion becomes a curve in the frontal plane, thus scoliosis develops. In certain cases, if the effort at compensation fails as described above, a flat back results, which is unsafe since it is proven to be followed by scoliosis.

In association with the spinal condition, may be seen at times relaxation of the ligaments of the knees leading to knock knee deformity. Flat or pronated feet is also a postural condition in pre-school children which should receive attention to prevent deformity and symptoms later in life.

The prophylaxis against malposture or curvature should be instituted during the periods of rapid growth, which is in the first few months of life, between 3 to 5 years, and at the prepuberty age. Measures should be taken to develop the reserve force of the musculature of the back in maintaining the balance and the symmetry of the body. The child is safe as long as he has full control of the muscles and there is no previous curvature. The waning control of the muscles over the spine is seen in these prescoliotic stages.

In the treatment, attention must be paid to the general condition of the individual as well as the local. One must consider the spine in its relation to the position of the thorax, and also to the position of the abdomen. This triple system is so inter-related, that one system can not be treated without considering the other. Attention should be paid to proper breathing, and removal of any obstruction of the upper respiratory passages, such as enlarged tonsils and adenoids. Since

respiration is also affected by the intra-abdominal pressure, one must see that the abdominal muscles are properly developed. The relaxed knees and pronated feet can be best treated in these pre-school children with massage, manipulation, and corrections on the shoes.

In conclusion I would state that all therapeutic measures must be directed toward the development of the normal resistance of the body as a whole, and of the spine in particular. This means the development of the posture of the thoracic musculature, of the breathing mechanism, and of the abdominal tone. Prophylaxis should begin in the pre-school years at the time the predisposing elements are recognized and before the first symptoms of actual deformity make their appearance.

### CONGENITAL DEFORMITIES\*

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I will give a brief outline, for practical consideration, of congenital deformities of the bones, joints and muscles. Consideration of them all would take entirely too much time. I will divide them into two classes, namely, Primary or Idiopathic and Secondary. Primary forms are inherent defects in the fertilized ovum, influencing the development of the embryo. Secondary forms are those where the fetus is at first normally formed but through some cause deformity arises at a later stage. Formerly, these deformities were attributed to one or more of the following factors:

- (1) Trauma to the pregnant mother.
- (2) Pathological conditions of the amnion, especially of the amniotic bands.

These theories have been more or less discarded and the anomalies are thought to be due to fundamental changes in the growth of the embryonic cell.

I will consider briefly the usual deformities that present themselves to us:

- (1) Congenital dislocation of the hip
- (2) Club foot
- (3) Torticollis

The first attempt at reduction of congenital dislocation of the hip was made in 1700 on the cadaver. First one being done on living subjects in about 1830. In 1888 reduction of the hip by manipulation, then demonstration showed that it could be done but this method was made practical and effective by Lorenz in about 1895.

It is seldom that the open reduction is performed today, except in cases where reduction has proven impossible or where relapse

\*Read before the Jefferson County Medical Society, June 15, 1931.



has occurred. It is a question whether congenital dislocation of hip should be classed as primary or secondary. It exists at times in connection with other congenital deformities and in such cases it is reasonable to assume that it is primary, except in rare cases of spina bifida, where the legs are paralyzed, and the hips dislocated where it is reasonable to assume that the displacement is of paralytical origin. As to its identity with secondary deformity it would seem that flexion and adduction of the thigh in utero would favor displacement of the head. Rarely it co-exists with club foot, evidently of secondary origin so it would seem that it might be classed either as primary or secondary. However, this is not of much importance as it does not affect the question of diagnosis and treatment.

**Symptoms:** It is rarely recognized before the child begins to walk, children with bilateral dislocation have a characteristic gait by marked waddling. In the unilateral there is a limp, with lurching to the side and shortening exists. In the usual backward displacement the point of suspension of the femur is behind and above its normal position. There is a marked lordosis. Diagnosis is always positively made by the x-ray but, of course, sometimes the surgeon may have to rely on other signs. Mistakes in diagnosis should not occur but the fact remains that it is frequently overlooked or wrongly diagnosed. In single dislocation the child limps as soon as it walks, shortening exists from  $\frac{1}{2}$  inch to  $1\frac{1}{2}$  inches in young children. The head of the bone is felt to be out of place. In double dislocation there is a waddling gait at the outset. Lordosis is more prominent than in the single variety. The trochanters are very prominent at the lateral aspects of the buttocks. The motions of the hips are free and generally painless.

Defect in x-ray diagnosis occurs in only one point and that is the differential diagnosis between congenital dislocation and dislocation from destructive disease of the joints.

**Prognosis:** Without proper reduction the hips are unstable and characterized by a bad limp and much laxity on manipulation. They are frequently the source of much discomfort. In cases that are more stable and walk without much lurching the person frequently goes through life without serious disability.

Obviously, the treatment is to place the head of the femur in the acetabulum and retain it there for sufficient time. The obstacles to permanent reduction are: shallow acetabulum, which is more or less filled up by fatty and fibrous tissue; imperfect development of the head; the anteversion of the neck.

As the child grows these obstacles are very much increased. Reduction in infants is

comparatively easy but retention is not always simple. The greatest problem of reducing a hip is the knowledge in knowing how much force to use and especially when to stop.

**Club Foot:** Talipes Equino Varus. Talipes originally described only the deformity known as Club Foot, but later designated four varieties of foot deformities, as follows:

Talipes Equinus, Calcaneus, Varus and Valgus.

Equino varus constitutes about seventy per cent of all forms of congenital talipes. It occurs about once in every one thousand births. Heredity is a factor. It has been traced in four generations. It seems probable that this deformity is produced by pressure from abnormal position, or deficient amniotic fluid, fibroid tumor, interlocking of the feet, etc. It is important to know whether spina bifida is present, as it will frequently be associated with ulceration of the feet seriously interfering with operative treatment.

The astragalus is planter flexed. The neck longer and twisted; the head points inward, carrying the scaphoid with it. The os calcis is planter flexed and is tilted. The phalanges are likely to be planter flexed. The tibia is rotated inward on the long axis; the ligaments on one side are shortened and on the other side stretched. The Tendo Achilles becomes an active inventor of the foot because it is found deflected to the inner side. These changes are more marked as the child grows.

Knock knee, in severe cases of long standing may be ascribed to faulty technique in treatment. The knee should be flexed during corrective manipulation, as the strain of the internal lateral ligament, which takes place, is often the reason for the existence of knock knee in the so-called "cured" or "uncured" cases.

The most frequent need of making a differential diagnosis, is in young babies, who so often assume the inverted position of the feet. The true deformity is easily recognized in these cases by finding that the foot can be easily overcorrected by gentle manipulation. It is sometimes quite difficult to differentiate the congenital variety with a mild poliomyelitis, involving the anterior and outer muscles of the foot. Careful muscular examination will reveal in most cases localized muscular weakness. In poliomyelitis trophic disturbances are likely to be present. The congenital form, as a rule, is more marked and more severe but the long continued cases of poliomyelitis may result in a condition closely resembling a mild congenital club foot.

Acquired equino varus, may be due to peroneal type of muscular dystrophy. Early tuberculosis of the tarsus may present a de-

formity of this type, resembling club foot. Epiphyseal injury, or disease of the epiphyses, involving the inner part of the epiphyses at the lower end of the tibia, may cause an inverted position of the foot.

Fracture of the ankle may, of course, easily be mistaken for a congenital club foot. Without treatment, the club foot will steadily increase and become most unsightly and is sure to be the source of great discomfort. In former days amputation was frequently done.

With effective treatment, all cases in young children and up to middle childhood, should be cured and a useful foot obtained. In older cases the prognosis for complete recovery is not so good, as the foot will be shortened and somewhat mis-shaped.

**Torticollis:** There are two varieties of torticollis, Congenital and Acquired. I will say a few words about the congenital type. The Congenital type is divided into primary and secondary type. The primary variety is thought to be due to some defect of the embryo. This, at times, is associated with other congenital defects, such as abnormalities in the extremities. One form is due to an abnormality of the cervical vertebrae, in which the distortion is due to the bony defect, and not to the shortening of the soft parts. Also, I would mention the fusion of the atlas and occiput and cervical ribs. The secondary form is thought to be due to abnormal position of the head in utero, but this is purely speculative. There are some cases caused by hematoma of the sterno mastoid muscle, occurring during birth. It has been claimed but is entirely out of the question that all cases of wry neck are caused by the partial rupture of the sterno mastoid muscle, but is occasionally associated with it. This point is by no means clear but rupture or partial rupture of the muscle, or effusion of the blood in to its sheath must be regarded as one of the causes. Secondary changes from position occur in long continued torticollis. The asymmetry of the face is rather characteristic of the long standing variety but sometimes is caused by tuberculosis of the cervical spine, lateral curvature of the spine is always present in some degree as a secondary change. The facial asymmetry is less noticeable in the deformed position than when the head is straightened, as a corrected position of the head brings out the asymmetry very markedly. This tends to diminish or wholly disappear when the position of the head is corrected. Double torticollis results in very curious positions; the neck is short, shoulders are high, chin somewhat elevated; both muscles contracted.

It is very obvious that an x-ray of the cervical vertebra should be studied in all cases.

A good number of cases have been operated upon without a previous x-ray and with no improvement because the shortening of the sterno mastoid muscle was secondary to a malformation of the cervical vertebra.

## ORTHOPEDIC ASPECTS OF POLIOMYELITIS\*

J. D. TRAWICK, M. D.

Louisville.

**Introductory Remarks:** We are finding now that a large number of deformities is the result of poliomyelitis in early childhood. This disease is the scourge of childhood, is no respecter of person, race, nor social status. It may strike anywhere and any child, and when it does, it may leave some form of permanent deformity which is a handicap throughout life. Probably no affliction in childhood calls for more delicate handling than does this disease. The question confronting us is: When should orthopedic treatment be instituted? I think it should be instituted just as soon as a diagnosis of poliomyelitis is made.

I shall not dwell upon the etiology, pathology, and symptomatology of the disease, as you know this already too well for repetition.

The deformity and flaccidity resulting from poliomyelitis is what will be seen two or three years from the time of the disease if delicate handling, proper care and treatment have not been given. Hence, the prognosis must be guarded.

The prevention of deformity should be the aim in the treatment of poliomyelitis, and in order to do this orthopedic treatment should be started early in the course of the disease.

**Deformities of the Trunk:** The treatment of scoliosis should be done in the developmental stage. This subject has already been discussed, so I shall not dwell upon deformities of the trunk.

**Deformities of the Lower Limbs: Equinovarus:** I know a child who had poliomyelitis which resulted in the loss of function of the lower part of the leg. The leg was left dangling and helpless. The quadriceps, however, were still functioning some. The muscles of the lower part of the legs are usually the ones affected. The evertors of the foot in this particular case had lost their function, and the invertors had pulled the foot inward. The foot in this type of deformity is planter flexed, adducted and inverted.

The treatment in a case like this should be the continuous use of braces over a long

\*Read before the Jefferson County Medical Society, 15, 1931.



period of time, or the use of surgery to stabilize the part.

**Equinovagus deformity:** In this type of deformity the foot is planter flexed and everted (pulled outward). The foot is left dangling and helpless. Stabilize the foot and ankle after putting it in correct position.

**Treatment in General:** 1. Prevention: The orthopedic treatment of poliomyelitis is the prevention of deformity. As soon as the child is paralyzed institute orthopedic treatment in order to preserve all motion possible.

2. Fixation: Braces should be used. The use of braces doesn't mean the employment of big, heavy, cumbersome braces. Use light material but strong enough to hold the part affected in absolute fixation. As much as I like plaster Paris casts, I think there are some cases which actually suffer from their use. For the last few years I have tried the use of braces, securing absolute fixation; and I think that where braces can be used, and absolute fixation secured, they are better than plaster Paris casts. I do not mean to minimize the value of casts, where they can be used to an advantage, but during the past few years I have been getting away from them and making use of braces. I have found that where braces can be used, and fixation secured, results obtained are satisfactory, and the comfort given the patient in most cases is gratifying.

3. Surgery: The various types of surgical procedures which have been and are still used in the orthopedic treatment of poliomyelitis are arthrodesis, tendon transplantations, osteotomy, tenotomies, and stretching tendons.

4. Physiotherapy: Gentle and graduated exercises extending over a long period of time are beneficial to the patient. The child must be educated to use the affected limb, which is a tedious and slow process.

Water baths for the parts involved in poliomyelitis are good.

**Irrigation of Peritoneal Cavity for Suppurative Peritonitis**—Lurje and Matis are greatly impressed with the value of continuous irrigation of the peritoneal cavity with physiologic solution of sodium chloride as a part of the surgical technic in cases of suppurative peritonitis. In addition to the usual incision (as, for instance, when operating for an inflamed appendix) a puncture is made in the epigastric region. Through this opening continuous irrigation of the peritoneal cavity is made during the course of the operation. This procedure ensures thorough cleansing of the upper abdominal cavity and evacuation of the lower portion of the cavity. The danger of infection is reduced to a minimum and the condition of the patient after operation is vastly improved.

## TUBERCULOSIS OF THE JOINTS\*

I. A. ARNOLD, M. D.

Louisville.

I wish to discuss two phases of the subject—etiology and treatment, as the subject is much too big for the time allotted. I will also confine myself to tuberculosis of the movable joints with synovial fluid and sac.

First, in order to have a tubercular joint, there must be tubercular bacillus some where in the body, as of the lungs, lymphatic system or per chance in the blood stream. The germ may be walled off, active, or inactive. In conjunction with trauma and lowered resistance, the tubercular bacillus is carried to the joint by the blood where the field is conducive to its growth.

Second, the contributing causes may be divided into systemic and anatomical. Joints that are subject to a great amount of friction and weight bearing, such as the knee, are more frequently involved than others which are subject to less strain. Circulation of the joints plays an important part as to the location of the tubercular lesion. Epiphysis and diaphysis get their blood supply from two different sources. The diaphysis receives its blood and nourishment from the vessels of the bone and periosteum; while the epiphysis receives its nourishment from the arteries entering its ossifying centers; therefore, between these sources of supply there is a slowing of the current, almost to stasis; especially is this true in children and the joints of the young adult. Later in life, as ossification is completed this factor becomes a less contributing cause. One can readily see that as long as the individual is in good health, he will escape the invasion of the tubercular bacillus, but with lowered resistance and the presence of tuberculosis somewhere in the system, together with an injury, the joint is almost certain to become involved. About 80% of tubercular joints have their origin in the adjacent bones and surrounding tissues. There are cases, so far as I am able to discern, that have their origin apparently in the synovial sac; however, these must be accompanied by direct and contributing causes. Personally, I do not believe that a normal synovial sac will permit the filtering through of the tubercular bacillus. The sac must be invaded by continuity from the surrounding bone or tissues except in case of direct trauma to the joint affected. Some of the systemic diseases which lower the body resistance are, typhoid fever, pneumonia, prolonged gastro-intestinal disorders, active pulmonary tuberculosis and rickets.

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Some classify syphilis as one of the most common predisposing causes; however, I cannot agree with that statement. There is no question that tubercular joint lesions do occur in the presence of latent or active syphilis; however, I am of the opinion this is more a coincidence rather than a contributing factor. There are some contributing causes such as infection that may become exciting factors by its proximity of the focus of infection to the joint. The exciting causes are such as, direct injury to the joint, laceration of capsule, hemorrhage into the joint and infiltration of the joint fluid into the periarticular tissues. Indirect trauma is one of the most frequent exciting factors and is caused by muscular action, twisting of the joint, forced extension or forced flexion to such degree as will lacerate the joint tissues and detach them from their attachments at the junction of the osseous tissue and articular cartilage. There are other exciting causes such as friction of joint surfaces and prolonged strain. These will produce hyperemia and cause an undue amount of secretion in the joint and lower its resistance. The most common invasion of the joint proper is by extension from the bone lesions adjacent to the capsule such as, tuberculosis of the epiphysis and diaphysis; in this type of tubercular lesion the prognosis is more unfavorable, as it has not only tuberculosis of the joint to combat but also the bone tissue. The type that involves the joint cavity alone is much more favorable than that of the bone and joint combined.

Treatment evolves itself into systemic—the building up of the body as a whole, complete rest and relaxation, although in the treatment of tubercular joints one may say, they are inseparable as either alone will not suffice to relieve the condition.

The constitutional or systemic treatment consists of rich nourishing food, not forced to the point where the food becomes repulsive, if you do he will not have gained anything, but will have lost considerable ground. It is not necessary to go into detail as to the kind of food further than say it should consist of the same nourishing value as one would give to any tubercular patient. Fresh air and sunlight are important, surroundings and personnel, that is, friends and attendants should be such as would be conducive to mental rest and optimism. High dry climate is desirable if it can be gotten without removing the patient from home but it is not absolutely essential; however, it will aid much in the treatment of the case. Tonics should be given as they will aid materially by having the substances which nature demands in tissue building present in the circulation at the time when nature calls for it.

Rest must be had both mind and body and complete rest of the joint affected secured by immobilization and fixation. Fixation of the joint is accomplished by external appliances and operative intervention. One of the best methods, if the case is seen early, is complete fixation of the joint by a Plaster of Paris cast. In cases where contraction has taken place with marked deformity, it is well to use extension with traction until the musculature has been sufficiently restored as to be able to overcome the deformity. In some cases it may be necessary to use traction and extension in conjunction with the cast. There are various appliances on the market and the best to use is the one with which the operator is most familiar and has obtained the best results. In the majority of cases, if seen before too much damage has been done, the above treatment will suffice. Otherwise the tubercular cavity once opened you will have a mixed infection. If the lesion is of some duration and there is considerable amount of fluid and pus in the joint, it may become necessary to do the undesirable thing—aspirate the joint or make an open incision. Should the patient survive, he will have a sinus that will not close and probably the loss of a joint or amputation. If, after several months of treatment, the desired results are not obtained, it is then advisable to consider the open operation to evacuate the pus and remove the diseased bone and tissues. This is possible to do in some joints as in the wrist where one or two of the carpal bones are involved. We may be able to remove the entire diseased bone and have restored function. However, with a joint such as the knee or hip where there is weight bearing on the surfaces, it becomes practically useless to endeavor to save the joint function. Then we must strive for ankylosis by resection of the joint surfaces or the transplantation of the pedicle or autogenous grafts. It seems strange that in tubercular lesions, without mixed infection, the grafts of new fresh bone will grow and become a part of the bone or bones and by this fusion ankylosis is established. This graft cannot be done in other infections such as, staphylococcus, in mixed infection, the joint cavities must be laid wide open, free drainage established until all evidence of infection has disappeared and has been verified by a bacterial count before fusion of joints may be undertaken. Having to abandon the idea of restoration and function of the joint, we must secure ankylosis and place the joint in such a position as will render it most serviceable to the patient. For example, the hip should be slightly flexed so as to enable the patient to sit down without too great discomfort, and at the same time maintain a fairly erect posture when stand-



ing. The knee should be straight with three-fourths inch shortening, thus he will be able to walk without swinging his foot outward.

The majority of these cases come to us after considerable damage has been done, yet, we are often able to restore joint function, and in the more severe with the joint sacrificed, function of the body as a whole is considerably improved and the patient though somewhat impaired is able to make a livelihood. Unfortunately, these conditions have their origin early in life due to improper food, unhygienic surroundings, and contact with diseased persons. Such a status is the causative factor to the above and, if eliminated would play a great part in the diminution of the orthopedic cases with which we are now confronted.

### DISCUSSION

**Orville Müller:** I have enjoyed these papers very much indeed and I feel that the essayists are to be commended for their excellent papers because of the fact that in spite of the short length of time for the presentation of each paper, all the important points have been presented. I am reminded of a story told by Benjamin Franklin who sat down to write a letter to one of his friends and after several pages had been filled and he at last came down to the close, he said, "I intended to write you a short letter but have found that I did not have time, so I have written this long one." It is considerably more difficult to write a good short paper than to write a long one, and it is difficult without a machine gun or a gatling-gun to "take a shot" at each of these papers in as short a time as there is for discussion of them.

**Static Deformities:** It has been my experience that static deformities are frequently rather difficult conditions to treat unless the patient is brought for treatment very early after the onset of the disability. It is frequent, too, that the patient does not co-operate properly, but the best of results may be had with cases in which the treatment is started early and in which the patient does co-operate properly.

**Congenital Deformities:** Among congenital deformities, except for scoliosis of the most marked type and congenital absence of some portion of a member or an entire member of the body, we find that we get our most pleasing results. Especially is this true of such conditions as congenital dislocation of the hip, congenital club foot, torticollis, etc. If congenital dislocation of the hip is put under treatment early, at least before the age of five years, it has been our experience at the Children's Free Hospital, that a vast majority of them require nothing more than a Lorenz operation for complete cure. We have no figures to present but we have found that among a large number of patients treated at the Children's Free Hospital, that we have a great deal more trouble with

those cases which have had no treatment and are past 5 years of age; and it has been necessary in certain instances to do an open reduction. We have been using the Smith-Peterson incision for this procedure and have been thoroughly satisfied with it because of the wide exposure that it affords and the small amounts of bleeding that accompanies this technique. But rarely is it necessary to do an open reduction when the acetabulum is not too shallow to keep the head of the femur in place, or when the child is under five years of age. In very shallow acetabulum cases, we have been building a shelf of bone from the upper rim of the acetabulum to extend out over the head of the femur, rather than to ream out the acetabulum and run the risk of fixation of the hip afterwards.

In congenital club feet we have found it necessary at times for a patient to wear a plaster of Paris bandage on the affected side for as long as six or eight months after the deformity has been corrected. Braces are then applied and the patient is kept under observation because of the strong tendency that there is for recurrence of the deformity. The mother or the nurse is instructed to massage and manipulate the feet so as to improve the circulation and the nutrition of the parts as well as keeping the foot soft and pliable and at the same time, overcoming any tendency toward contraction of any of the ligaments or soft structures.

**Infantile Paralysis Cases:** I am convinced that Orthopedic treatment should be instituted in infantile paralysis just as soon as paralysis is found. Fixation should be applied that will prevent contraction of any one muscle, or group of muscles, and that will hold the parts in position of physiological rest, which will not interfere with circulation and which will afford considerable relief from pain which these patients experience. While there is sometimes constant pain in and about the joints of the affected extremity, it is much more marked during motion, either active or passive, and so complete fixation, in my mind, is desirable. This is best obtained by plaster of Paris and in cases in which the lower extremity is involved, a plaster of Paris spica should be applied for a period of about eight weeks, or until the sensitiveness disappears. Disappearance of pain and sensitiveness usually marks the beginning of the stage of convalescence and this is the time when patients are started on muscle re-education. The patient is instructed in the active use of the muscles that are paralyzed while he is immersed in a bath tub or swimming pool, and it is astonishing that a muscle that is apparently completely useless while the patient is lying in bed or sitting in a chair, may be practically completely activated after immersion of the part under water. The patient should not be allowed however, to throw too much strain on the weakened or paralyzed muscle, because of the danger of actually retarding his progress. It

has been definitely shown that over-straining a normal muscle even, may produce a paralysis that cannot be overcome for many months.

Massage and physiotherapy are also administered at this time, but these should be gentle in nature and graduated. There is practically always more motion in the part finally than would seem to be possible to the parent when the child is first affected, and we are practically always safe in saying to the parent that marked improvement is sure to follow. No surgery of any sort should be done until the patient has reached a stage of residual paralysis, or the chronic stage, which begins usually after two or three years from the time of onset of the paralysis, but in the meantime protection should be afforded the part while the re-education of muscles has been going on.

**Tuberculosis of the Joints:** The prognosis in tuberculosis of the joints is fair, as has already been stated, and the more distant from the central portion of the body the lesion is found, the better is the prognosis. The statement has been made that tuberculosis of the hip never heals, but I doubt this statement, because I believe that I have seen them heal, and yet I cannot be certain, because it is possible that diagnosis was not correct. I believe that a diagnosis of tuberculous arthritis cannot positively be made without demonstrating the tubercle bacillus, either on a slide from a secretion of a lesion, or recovery of the bacilli after some material taken from a lesion is injected into a guinea pig. There are so many things that may simulate tuberculosis so very closely. The patient should be given five years time in which to recover from a tuberculous lesion. In adults, time is a very important factor quite frequently, as for instance, in the case of a man who must earn a livelihood for his family, or a mother who has children for whom she must care. In these cases, it seems wise to me to produce internal fixation of the joint by the means of a bone graft, such as Albee or a Hibb's operation and although the patient may not be entirely well, he is nevertheless, able to go about his duties after he has recovered from the grafting operation. So far as his activity is concerned, he is well and there is no danger of his increasing the amount of destruction by his moving about and working, performing whatever duties that are necessary.

#### **Indwelling Catheter in Injury of Urethra.**

Tristant considers this treatment of value in patients in whom circular urethrorrhaphy is to be performed later. Preliminary cystostomy should be done to exclude the danger of an ascending infection. This method is contraindicated in patients with chronic retention and weak urinary bladder or in those in whom the muscles or the mucous membrane show symptoms of deficiency.

## **MEDICINE AND PUBLIC HEALTH\***

J. S. CHAMBERS, M. D.

Lexington.

At this time as at few other times in history rapid changes are taking place in the fields of science. This is true of all the medical sciences but more especially in the practice of preventive medicine. It behooves us, therefore, on occasion, to take stock, so to speak, and try to determine what we are doing, where we are going.

The development of new knowledge is usually followed by changes in practice; changes in practice mean readjustments; readjustments of the special fields of medicine are often the source of misunderstandings and difficulties.

The difficulties between medicine and public health arise usually over locating the line of demarcation between the practices of preventive and curative medicine. This line in the past has been an arbitrary line, a shifting line, which has changed from one era to the next and which it may be assumed will continue to change. This line of demarcation has come near being a gulf or chasm across which one could pass only with difficulty, but again change is taking place in the opposite direction.

The question might be asked why a line or a gulf or a chasm between the two practices? Be it understood that it exists not because of differences in the sciences of prevention and cure nor in the basic training for practice. The surgeon, the internist, the pediatrician, the obstetrician practice prevention, as the health officer, the school physician and the epidemiologist practice diagnosis and treatment. The difference lies not in aims, objectives or ideals of the school physician and pediatrician. Rather the difference, the line or gulf or chasm, exists because of differences in economic and personal relationship between physician and patient.

What are then, what should be, the duties, the functions of the board of health? Their function like that of the physician is the prolongation of life and the prevention of sickness and death. We have said that the basic difference between public health practice and private practice lies in the economic and personal relationship between patient and physician. Through the ages, with all people, at all times this has been and is the ideal way of applying the medical sciences. We might say that this personal relationship between patient and physician: this method of applying the science, contains the art of medical practice. Then it should be the duty of the board of health to preserve and to

\*Read before the Kentucky Valley Health Officers Association, Lexington.



expand this method. Unfortunately there is an economic aspect to this relationship which limits private practice as a universal method of applying the medical sciences. It is this economic aspect that is at the root of most of the shortcomings of medical service.

#### HISTORICAL

It may be well then to discuss the origin and development of the different public health activities.

The control of epidemics probably constituted the first public health activity. Hippocrates was probably consulted on the occasion of epidemics not only in Greece but also by the Macedonians and by the King of the Persians. The father of medicine's treatises on epidemics testify to the fact that he was a student of the subject.

It is also well authenticated that in ancient times there were city physicians whose duty it was to care for the poor.

During the dark ages religion so superseded medicine in the lives of the people, it so dominated all thought, that people resorted to priests in time of illness as in time of the great epidemics which prevailed then as at no other time in history.

With the Renaissance and the rise of the universities, medicine came again to be cultivated. Physicians were called by the people in times of illness. They were consulted by cities in time of epidemics; they were again employed by cities to care for the poor; medicine was again gaining some recognition.

Following Paracelsus, Vesalius and Harvey anatomy and physiology developed rapidly. Morgagni added pathological anatomy to the structure. On this foundation clinical medicine, through the influence of such great teachers as Sydenham, Boerhaave, Laennec, John Hunter and many others, developed to great heights and won for medicine a greater measure of the confidence of the people. This confidence was expressed in many ways but in no way more than in the creation of boards of health to combat the spread of epidemics.

In Kentucky the state board of health was created to prevent epidemics of smallpox and cholera. In Lexington during the cholera epidemic of 1833 the board of health sat daily and struggled with the mysteries of the epidemics: they issued daily bulletins telling of the progress of the epidemic and instructing the people how to avoid the scourge. The remedies recommended were interesting: they varied from a pound dose of calomel to the continuous firing of cannon on Cheapside, both of which were actually carried out.

The activities then of boards of health before the time of Pasteur consisted chiefly of efforts at the control of epidemics, some

very perfunctory attention to sanitation and some efforts at medical service for the sick poor.

From the time of Pasteur, with the specific knowledge contributed by that intrepid leader and his contemporaries, preventive medicine has taken on far reaching activities. The period from the time of Pasteur to the World War saw very extensive expansion in public health practice. This expansion was chiefly in the field of sanitation and the control of epidemics. The effort was almost entirely directed at the control of the environment of the individual to the end that disease be prevented.

Since the World War sanitation and epidemiology are well established. They need now only be applied. Their importance has so entered the consciousness of the people that their application depends now not upon the approval of the people but upon sound and efficient policies and machinery for their practice.

Since the World War many new activities have been added. These new activities may best be summarized by saying that public health practice now concerns itself not only with the environment of the individual but with the individual himself, and especially the young individual.

Probably the most significant post war development has been that of the full time county health unit, and this post-war era will be discussed as the activities of the full time county health unit.

#### THE COUNTY HEALTH UNIT

The first full-time county health unit was created in Yakima County, Washington, in 1911. This movement grew slowly until after the World War when through the influence of the International Health Board and other agencies it took on new life and has become one of the important public health movements in this country.

The activities of these units were formerly directed toward environmental sanitation but now the emphasis is more on individual or personal health. The public health dollar is now purchasing immunization to typhoid fever, diphtheria, scarlet fever and smallpox. It is supplying many immunizing and therapeutic agents. It is controlling to a greater or less degree many other communicable and infectious diseases such as tuberculosis, malaria, hookworm, venereal disease, tularemia and many others. Maternal and child hygiene and school and pre-school work are absorbing much of the efforts of the personnel. Nutritional clinics, oral and mental hygiene clinics, the physical inspection of school children for the discovery and correction of such defects as refractive errors, infected tonsils and adenoid, posture and ortho-

pedic defects, defective hearing, malnutrition, are all included in most public health programs as routine procedures. Now, it may be asked, why can't this all be done and done better by the private physician? We wish it were so. We would encourage every such good tendency. However, economic considerations enter to limit this possibility. To the average person of average intelligence and average income such a service is an unthinkable luxury. This whole great mass of medical need among the great mass of people who know little of what medicine has to offer and even less of the need for it cannot be expected to be met by the private physician.

Then what should be the attitude of both the health worker and the private physician toward the question of who shall do it. Certainly the health officer should look upon the physician as his greatest ally. Not only should the opportunity be given but each and all should be solicited to go to their physician for any or all their needs. The essential thing is that the needs should be pointed out. The health officer finds, however, that only a small part of the need is met by the private physician and that if it is met at all he must meet it *en masse*, so to speak, as best he can. The private physician should know that he cannot go out and find the whole mass of need; he should know that he cannot solicit the meeting of this need; and further he should know that economic factors limit his service to the whole mass of need.

There is another so-called sore spot, a difficulty, in the relationship of the health officer and the private physician. I refer to the question, who shall care for the sick poor? We might ask who are the sick poor? Are they increasing in numbers? Why is this problem coming up so often at this time? We may find an analogous situation in the condition of industries in this country at the present time.

Industries developed beyond the market for their product. The machine can produce faster than the people are able to consume, pay for. This condition contributed to the present depression.

Now in medicine knowledge has expanded so rapidly, so much more can be done, so much more service can be given that the average person can ill afford the full measure of service that medicine is capable of rendering.

To illustrate this point let us consider a few examples. The individual who acquired a chancre thirty years ago probably paid his doctor not over \$10.00 to \$15.00 and went his way with his syphilis. Today this same individual would be expected to pay his doctor \$300.00 to \$500.00 but would have a good

chance for cure. Again the individual who had an acute appendicitis thirty years ago usually was ill a week or two and either recovered or his appendix ruptured and he died. His doctor's bill was not over \$10.00 or \$15.00. Today that same individual would have his appendix removed, his bill would be about \$250.00, and he would be spared the chance of rupture, peritonitis and death.

We might go on down the list comparing the cost of such things as a confinement, a diagnosis, and many others, but this suffices to show that while it costs more it is worth more; many who paid his doctor bills thirty years ago are today medical indigents. They have quite evidently increased in number.

Who will supply a medical service for the indigent sick? The health officer is here placed in a difficult position. He is in daily contact with the need: he sees daily, needless suffering and death. His job is to prevent sickness and death where possible. That is the ideal, the purpose, of medicine, his profession. He uses his morbidity and mortality statistics as a measuring rod of his effectiveness. He is more cognizant of, more interested in, a medical service for the sick poor than any other individual in his community.

On the other hand he could not do it all however much he would like to do it. Also he has this full and extensive program of activities already outlined which fill his day and more. He must forego then for himself and staff the medical care of the sick poor.

The private physician is also in a difficult position. He sees much of the need. Charity is written in the creed of his profession: it is one of the fine traditions of his profession. He wants to do all he can. Yet when the creed was written, when the traditions were being built up, society was not so complex. Many of the poor could pay in kind. Yet, again, when these traditions were being built up there was not so much to be done to prevent sickness and death. Medicine had not so much to offer: neglect mattered less. Perhaps there were not so many sick poor. The private physician today has seen that he cannot take care of all the sick poor. He wishes the health officer would do it but he ought to know that he, likewise, cannot do it.

The health officer and the board of health would like to know how to solve this problem; we would all like to know how to solve it. The board of health and the health officer have admitted that it is their job; they have hired physicians either part or full time to give medical service to the sick poor.

This expedient has many disadvantages and often fails to meet the need because the economic and personal relationship of physician and patient has not been maintained.



and because a lone physician cannot render a medical service. Furthermore such work is not an incentive to the development of initiative and professional attainment by the physician.

Independent organizations have tried to fill the gap and have, at intervals, and in places done the job with more or less success, but here again, as the physician sees it—through the great channel of charity.

Another expedient, to meet this need, and one of greater promise than the so-called city or county physician, is the visiting nurse.

Through her almost devout application and effort she has done much in discovering and pointing out and to her limit, even in meeting the need and has won for herself a prominent place in the work.

The care of the indigent sick, and we might add as well the sick of limited means, is probably the biggest problem we have to face. It is your job. You have already admitted it by trying to do it. It is your job to see that it is done but you cannot do it yourself. The practicing physician should do the work either through the wide channel of charity but with assistance and facilities supplied by the board of health or other agency or with remuneration from some source other than the patient with still as much of the economic and personal relationship of patient and physician maintained as possible.

Another important factor in the relief of suffering and the prevention of sickness and death is the hospital. You may ask what interest has the health officer in hospitals? Who, we may ask, if it prevents suffering sickness or death is more interested in your county or community having a hospital? Who sees more of the need for it? The health officer of a rural county which has no hospital could do no greater service for his county than to secure for his county a good medical service and the general hospital is the key factor in a good medical service. He also has a specific interest in the hospital. The modern hospital has two functions: Care of bed patients and the care of out-patients. This latter function has almost trebled in this country during the last eight years. It is one of the outstanding trends in medical service. It is at the outpatient department of the hospital that all the public health clinics should be held; it is in this outpatient as well as the inpatient department that medical care of the sick poor, with the aid of good facilities and assistance, can be accomplished to the greatest advantage of both physician and patient. If the physicians of your county are to care for the sick poor; if they are to assist you with public health clinics, either as charity or with remuneration, they, as an organized profession, as members of the

hospital staff, can best render this service at the hospital where facilities and assistance are at hand. If the people of your county, especially the poor, know that in time of illness they can find help at the hospital, and if the visiting nurse from the hospital assists in bringing help and need together at the hospital much needless suffering and death will be prevented.

Just one other point about the hospital: if you have a good general hospital in your county, which serves all class of need, you will not long suffer a shortage of physicians, or medical service.

These are some of the problems of the health officer and the board of health. It is to be hoped that they will push themselves through your daily rounds of busy routine and demand some of your most serious thought and soundest judgment. It is to be hoped that the heavy load of your daily rounds will not so absorb your energy and effort as to obscure from view the broadest aspects of the field of usefulness that public health may be expected to assume.

The interests of the health officer are as broad as the field of medicine. He is interested in anything that is going to prevent illness and death. He is as interested in his community having a good medical service as he is in them having a good milk supply. Knowing that the hospital is the key factor in a medical service, he is as interested in them having a good general hospital as in them having pure water. It has been said that a medical service is a part of a public health service.

To meet these problems public health needs the choicest human material, to whom she should give the broadest training, and whose position should be secure in the community.

I cannot close without quoting from the editorial page of the Canadian Medical Association Journal:

"Here is a gorge with bridges. On one side are all sorts and conditions of illness needing prevention and cure, and ill people and threatened people needing help, though far from fully aware of the help they need, or when they need it, or why. Over on the other side of the gorge are all the various phases of modern scientific medicine, skill research, hospitals, special knowledge, disease prevention. But between these two sides, as in the parable, there is a great gulf fixed.

"Across this gulf are three bridges. The first, with one pier named for Hippocrates and another for Sydenham, and with the glamour of centuries about it, is the ancient toll-bridge of Private Practice. It is not broad. It does not give easy or adequate access from the side of Help to the side of

Need. Still there is much that can be said for this fine old bridge when ideal and adequate relations have been well established between individual need on one side and an individual helper on the other. But when the whole great mass of need is considered, all sorts and conditions of people, the need of education, of prevention, and of regulation as well as cure, the bridge of Private Practice, with all its fine associations, seems in these days scarcely equal to the traffic that should pass from side to side.

"The second old bridge, with a pier that bears the name of the Good Samaritan, is the bridge of Charity. Men of our calling are proud to think how during all the ages of the world's history Need has called despairingly to Help, and Help has come most willingly to Need across this fine old bridge. Long may it stand. Yet it can never carry the whole traffic, and undoubtedly carries now, and has always carried, much that might well use other bridges.

"The third bridge is not old, but glaringly new, though built on many old foundations, like the priestly system of health regulation and the treatment of disease among the Hebrews. It is the bridge of Public Health Services. So far it is narrow and has more to do with prevention than with cure. This bridge simply had to be built, for one reason because the others could not cope with epidemic disease, and for another reason because the Bridge of Charity was so much over-used. This new bridge connects between the same body of science and art and the same mass of human need as the other bridges. Narrow though it still is, and new builders are constantly at work upon it, and it has trebled its capacity within our own memories. Yet withal it has not room for many services that could well make use of it.

"Now what is the future to bring? Will the gulf always be bridged by just three bridges? If so, there must still be widening of some or all of them and surely a better division of function than at present. Or is the newer bridge of Public Health Service to keep widening until it becomes practically the only one? Who can say? Who could be wise enough to dare to choose, even if he had the choice? Much would be lost if the fine old bridge of Private Practice were to fall into utter disuse, and the traditions and spirit of our calling would be much the poorer if the bridge of Charity were to be closed and finally sink into the gulf. Who can say what developments may be, even in our own day, and who can even guess at what is beyond?"

## REFERENCES

1. Dr. R. L. Wilbur, Committee on Cost of Medical Care, Published in 1930.
2. Dr. William H. Welch Dedication Address at Duke University Medical School.

## THE ANESTHETIST, THE SURGEON, THE PATIENT AND THEIR RELATIONSHIP\*

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As a specialty anesthesia is still in its youthful state. One of the first to practice it in the United States was Dr. Thomas Bennett, the first to practice in Europe was Dr. D. W. Buxton. The American Association of Anesthetists was first organized in 1912, at a meeting of the American Medical Association in Atlantic City and to Dr. F. H. McMechan all honor is given for developing this art as a specialty.

Sir William Osler says, "It is the greatest single gift to humanity to be able to make all our surgical operations free from pain." To anesthesia we are alone indebted, and when we have such a God given agent, is it not to our honor and is it not a privilege to make of this marvelous art a special study. To make surgery not only possible but so widen its doors and make it painless and safe.

There is one thing where all praise is due in bringing about the great advancement of surgery—it is the wonderful gift of anesthesia. Therefore is it not right for the anesthetists to be on equal grounds with the surgeon?

Finney says, "That the greatest advancement to the solution of anesthesia is the introduction of the trained anesthetist." Keen says, "That the ideal anesthesia will abolish pain without danger to life." We cannot but agree that the ideal anesthetic has not yet been discovered, it will I am sure because of the great advancements already made.

To the skilled anesthetist belongs the privilege of ranking equally with the surgeon. A well known specialist in surgery said in answering my remarks, that the time is getting ripe for the anesthetist to be on the same equal grounds with the surgeon. "Yes," said the surgeon, "and at times the anesthetist has absolute control of the case."

Why not in every medical school install a chair of anesthesia. We are making advancement in medicine and surgery and certainly are neglecting one of the most important branches. A chair in anesthesia will aid us to handle better those cases in surgery which were considered dangerous now with confidence and safety.

Just why State Legislators don't view anesthesia as an integral part of the Medical Practice Act is beyond my imagination. Why don't the Boards of Health take the

\*Read before Four County Medical Society, Mayfield.



matter up representing medical men through out the United States with the State Legislators? And thereby have the State Legislators investigate and act. It seems that the Medical Practice Act and medical colleges have taken but little notice of anesthesia. Is not the medical graduate better able to give anesthesia? The physician anesthetist knows something of anatomy, physiology, pharmacology, medicine and surgery. Is it not the duty of medical colleges turning out physicians and surgeons to instruct their students both theoretically and practically in anesthesia?

Really it is a great surprise to the European profession on visiting this country to learn that no recognition is given anesthesia by our medical colleges and hospitals and they on a tour of knowledge find it hard to realize the state of affairs which exist in some important medical centers in the United States. For example, Johns Hopkins or Harvard provide no special courses of lectures in anesthesia, nor do they require that a series of practical anesthetics be done as a preliminary to graduation and internship.

The impression of the laity has been gained through medical men, particularly surgeons, that to administer anesthetics the services of a technician or a general practitioner is satisfactory.

In some hospitals the nurse anesthetist is a matter of dollars and cents, if they decide to employ a nurse for their anesthetist and pay her a certain sum each month and the hospital pockets the fee for the operation and of course the hospital will then have a nice little nest egg each month.

We have no contention with the nurses, we are not trying to disparage their skillful labors but we as medical men must realize that our ultimate goal is a strict prohibition of nurse anesthesia.

The great advancement of surgery is not alone, for we have made like progress in all branches of medicine. There have been greater forward movements in our medical treatment, operative technique, operative diagnosis and now to anesthesia our efforts should be bent towards making this just as important as any other of these specialties.

The surgeon is paid for his services rendered and is not called upon to give advice regarding crop or financial investments, so also with the physicians who are commencing to demand more pay for their knowledge and services. This is especially true since the World War. Should therefore the anesthetists be denied a reasonable fee which his service in his specialty calls for? We need closer co-operation between the surgeon, physician, and the anesthetist, that is the ideal which we should all strive for.

We believe now that there are no anesthetists who are not capable of using ethylene, nitrous oxid, carbon dioxid and oxygen. A surgeon is one who devotes his entire time to surgery and if called upon in consultation is supposed to be able to handle the diagnosis on the surgical side. Just as an Internist is supposed to be up on all matters pertaining to medical diagnosis, and so on with the other specialties.

This is the first year that the Illinois Central Hospital in Paducah, has taught their interns to give anesthetics.

If the surgeon feels that an operation is necessary, is it not just as necessary in the formation of the proposed technique to call in a skilled anesthetist. My opinion is that it is just as important as the operative work of the surgeon. In fact, they are interlinked and I believe that nearly all the great surgeons of the present day count as a necessary part of their team an anesthetist, who certainly plays a most vital part.

There are some who don't give more than a passing thought to the anesthetic. Is this right to the patient, and to the team work which is most desirable? True, that someone is called on to give the anesthetic but I do not believe that the results are as satisfactory as when the complete team is working intact.

The anesthetist of the surgical team is well acquainted with the surgeon both professionally and socially because he follows through the entire process from the beginning to the end, he knows the part that the surgeon is going through and varies his anesthetic accordingly and gives to it his concentrated attention.

In this manner he is able to lighten the burden of the surgeon and be of material aid in preventing shock. An anesthetist who is known to the surgeon and whom the surgeon has confidence in, enables the surgeon to give his entire concentration to his operative technique for on a psychological viewpoint this is a very important factor for the entire operative team and patient. For there is more in anesthesia than the mere production of sleep, for it is wrapped in the mystery of life and death and in the separation of the soul from the body.

#### SUMMARY

1. Every surgeon should have the services of a competent anesthetist.
2. The anesthetist should be able to give all kinds of anesthetics.
3. The anesthetist should know the nature of the operation.
4. Both surgeon and anesthetist should know each other.
5. The anesthetist should make pre-operative and postoperative visits to the patient for the purpose of taking blood pressure and

listening to the chest and getting acquainted with the patient.

6. The anesthetist should know the operative technique.

7. The anesthetist should be a specialist the same as the surgeon.

8. That every effort should be directed towards establishing a chair of anesthesia in every medical school and it should be further taught in the hospitals.

## X-RAY VALUES TO THE PRACTITIONER OF MEDICINE\*

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Since Roentgen's discovery of the x-ray on November 3, 1893, there has been no one discovery or invention in science that has been as valuable to mankind. As an illustration of the eagerness to learn something of this "new light" there appeared one thousand articles in scientific journals and fifty books on this subject in the year 1896.

It is also interesting to note the editorial comments of what value it would prove to be. Some were optimistic, others very pessimistic. A legislator of New Jersey presented a bill to prevent the use of the x-rays in opera glasses. Much ignorance as well as great interest was displayed throughout the civilized world. One London firm advertised the sale of x-ray proof ladies' underwear. Many editors wrote about its future and seriously advised that the government should take some steps immediately to control its use. Most every day some of the leading daily papers presented a cartoon on this "new light."

Recent reliable investigators have informed us that Roentgen was a very modest man and never made but one public address on the subject of this "new light" although numerous invitations from other nearby countries were frequently declined. However, he lived to see the full fruition of this wonderful discovery. He was willing to keep on teaching and working to further advance science.

His original article was republished at the time of his death in 1923, more than twenty-five years after it was written, and I am sure the best informed roentgenologist of today could not present an article giving any more accurate information of the density of different materials, particularly the heavy metals, than was presented by Roentgen.

No branch of medicine or science has caused so much suffering among its workers, as most all of the early workers received burns resulting in either death or the loss of one or more fingers, and in many instances the loss

of one or both hands. Many died years later or are still suffering from x-ray skin cancer. Even with the knowledge we have today, destructive lesions are frequently appearing on the hands of roentgenologists and surgeons.

At first its sole use was for visualization of metallic foreign bodies and injuries of the bones. Today this is only a very small part of its usefulness in medicine.

### TECHNIQUE

A word on technique is not amiss here. Everyone of you should be familiar enough with the appearance of the bones and the principal organs of the body to know a good technical film; you should also know a poor film which is sometime worse than no examination as it may give a sense of false security. The errors we most frequently see are over-exposure, improper position of the patient to visualize the part being examined, and last but not least, poor technique in the dark room.

### FRACTURES

All of you treat fractures, either by choice or from necessity. I would insist on making two films at right angles wherever possible of every suspected fracture. Never make a negative diagnosis of fracture from a poor film or from a film where motion is present. Every patient that is injured should be advised to have an x-ray examination. This will protect you from a legal point of view as you have recommended what is in common use. If he refuses, it is his responsibility solely.

The preferable way to use the X-ray in fracture is a film immediately after injury, reduce under fluoroscopic control where possible, follow with another film examination as this is your safeguard and protection. Do not assume responsibility that is justly the patient's as the result of a severe injury.

You should expect and receive the following information from an examination after an injury. A negative or positive report of fracture or dislocation; whether the fracture enters the joint; if metallic foreign bodies are present; the condition of the soft tissues particularly referable to the presence of gas from gas bacillus infection.

### BONE DISEASE

Bone infections are recognizable if the cortex has been perforated or the periosteum is elevated. In acute osteomyelitis this is usually present in seven to ten days after the first symptoms appear. Oedema of the medullary canal will frequently give a faint charge in density within twenty-four hours after the onset of the infection.

In sarcoma following injury it may be months before a new growth is recognizable. If symptoms persist an examination should be made every thirty days. In metastatic

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carcinoma it may be several months before destruction of the bone cortex appears. Cortical destruction or bone reaction must appear before changes can be seen on the film.

Tuberculosis of the bone is not recognized on the film early in the course of the disease. It most always involves the joint and epiphysis of the long bones first, this is the differential point in diagnosis.

Acquired syphilis is usually so chronic that bone production with sclerosis is present, giving a very dense shadow of the cortex and obliterating the medullary canal. Congenital syphilis is destructive and may involve any bone or any portion of the bone. It gives a very characteristic change.

Pathological fracture is frequently seen from very mild injuries in metastatic carcinoma, syphilis and Paget's disease, and it will save you a lot of embarrassment if a roentgen examination is made early after a trivial injury. Persistent rheumatism in any bone or joint usually means bone disease appearing as metastatic carcinoma, arthritis, osteomyelitis, periostitis, tuberculosis, syphilis, or primary neoplasm in the bone or cortex.

#### GENITO-URINARY SYSTEM

We are expected to visualize the kidneys on the roentgen film in ninety per cent of the cases examined. The size, contour and position of the kidneys can be determined from the flat film. The number, size and position of stones present also, if calcification is present in the renal calyces, renal cortex or bladder.

With the proper use of the cystoscope and opaque media, the bladder, ureters and kidney pelvis are easily visualized. The presence of ureteral kinks, strictures, localized ureteral dilatations or ureteritis can be shown. The abnormalities in the urinary bladder that can be seen are diverticulae, carcinoma and incrustations of lime salts on the mucosa. Stones in the urinary bladder are not always shown, their visualization depends on the chemical composition. Usually if symptoms have been present very long there is enough calcium deposit present to render an opaque shadow. The soft non-opaque stones can frequently be shown by instilling silver salts, allowing the patient to urinate, and then make another film. Air injection of the bladder immediately before x-ray exposure will frequently visualize non-opaque stones, and is also valuable in determining induration in the bladder wall from carcinoma of the bladder or prostate.

Recently, the intra-venous use of uroselectans, skiodan or abrogil, all of which are iodine preparations, has appeared and gives promise of being of material assistance in the few cases that cannot be injected by the retrograde or cystoscopic method. One of

its greatest uses is the study of the genito-urinary tract in children. These solutions may be used in thirty per cent strength in the retrograde method and give a very dense shadow.

Such anomalies as double ureter, double kidney pelvis, horse-shoe kidney and in obstructions in the lower part of the ureters appear to be its greatest fields of usefulness. By careful observation information relative to the function of the kidney is obtained. It has been used but a short time but many cases are being shown where kidney pelvis, ureters and bladder are beautifully visualized. It is not thought that it will supplant the cystoscope but will be a very definite adjunct to the urologist in diagnosis. Films are made at ten, fifteen, thirty, forty-five and seventy-five minutes after intravenous injection of the dye. Frequent observation of the patient with the fluoroscope will give an excellent index when the best visualization is present.

#### RESPIRATORY SYSTEM

In diseases of the chest, there is no examination that gives so much information as to recent, as well as past infections.

In tuberculosis in children much information can be obtained relative to changes in the lymphnodes, the amount of calcium deposits and the presence of a primary tubercle. In addition to this information it is one of the best means of making a record of the progress of the disease. By comparing the films made at three to six month intervals improvement or retrograde changes are impressively shown.

The use of the opaque media for visualization of the bronchi has aided very materially by showing the size of a lung abscess or abnormal dilatations or constrictions in the bronchial tree such as bronchiectasis and bronchial neoplasms.

In the nasal accessory sinuses films made before and after the injection of opaque oils give invaluable information as to their size, contour and content, polypi and tumors of the maxillary sinus are frequently shown that aid materially in diagnosis and suggest the best way of operative approach.

The study of mastoid cells with the X-ray is very satisfactory if one is careful of the technique. Early in the course of acute mastoiditis, effusion can be clearly demonstrated and a fair degree of accuracy in prognosis is determined by the character of cells present.

In the pneumatic type more recoveries are to be expected than where the diploic type of mastoid cell prevails. The mastoid is best studied by making films in the antero-posterior position.

The index to the changes in the cells is the presence or absence of cell-wall destruction

which precedes the formation of a mastoid abscess.

Changes in the retro-pharyngeal soft tissues is a recent field that is being visualized on the roentgen film. This is particularly true of retro-pharyngeal abscess in infants and small children, and foreign bodies, non-opaque as well as opaque.

#### GASTRO-INTESTINAL TRACT

It has long been known that ulcer, malignancy and structures of the gastro-intestinal tract can be better determined on the roentgen film than by any other one method. At present the motor phenomena of the gastro-intestinal tract is observed at every examination, and a report of these findings is expected.

A careful observation of the behavior of the stomach and colon on the fluoroscopic screen will aid the internist very materially in prognosis and treatment of vagatonia or so-called nervous indigestion. This is only one link in the chain of the internist to arrive at conclusions.

#### X-RAY IN THERAPY

Many of the chronic skin diseases are quickly and permanently relieved by a single, or at most two or three applications of the x-ray if the proper dose, or doses, are administered.

There are many factors to be considered in applying the x-rays as a therapeutic agent. Neglect of any one of these will result in failure and sometimes result in disaster. It really requires years of experience to become proficient as a roentgen therapist.

You must know your technique when treating skin lesions. This is particularly true when using unfiltered x-rays, as a maximum dose is frequently required at the first application. We have frequently seen a chronic eczema that has persisted for years and resisted other methods of treatment, disappear after a single application of the x-rays.

Superficial epithelioma of the skin can be cured by one application of the x-ray though we are convinced that radium gives a better cosmetic result.

In boils and carbuncles the x-ray is of very material assistance in destroying the infection. Frequent large doses are to be given, using three to five times an erythema dose being sure to treat only the skin over the central portion of the lesion through a lead diaphragm.

#### MISUSE IN THERAPY

Our observation is that few if any of the enlargements of the thyroid of the adolescent should receive radiation therapy. This is also true of the hypertrophied tonsils and adenoids. In toxic thyroids many brilliant results are obtained. In our hands it has

rarely been used except as a preparatory treatment before a thyroidectomy. Since the use of Lugol's solution which gives temporary improvement it is a rare thing to be called upon to treat toxic thyroid.

#### PERSISTENT THYMUS

In persistent thymus x-ray gives brilliant results, relieving the distressing symptoms in twenty-four to forty-eight hours. This is a very rare condition and roentgenologists are frequently requested to see and treat patients who have distressing respiratory symptoms that are not due to a persistent thymus. When properly applied with no relief of symptoms, you may rest assured that the diagnosis is not correct. The thymus is very sensitive to x-ray or radium therapy even in minute doses. Usually three or four minute doses will give brilliant results. Relief is frequently experienced within forty-eight hours time after the first application.

#### TUBERCULAR ADENITIS

When properly applied reduction of the enlarged lymph node is prompt, giving permanent relief. Most of the first cases we treated had been subjected to one or more surgical operations without relief, many appearing with very ugly scars. They not only were relieved of their lymphnode enlargement but marked thinning of the scar was produced giving an excellent cosmetic result. At present we rarely see a tubercular adenitis that has been subjected to surgery as x-ray therapy has proven to be a better agent. Where local necrosis or abscess is present, simple drainage by incision followed with x-ray is all that is required. If this is done very little scarring results and much better cosmetic appearance is seen than where radical surgery has been instituted, or attempted.

In Spleno-myelogenous leukemia, x-ray will give a cessation of the symptoms though a cure is not to be expected. Frequent repetition has to be done and longer cessation of the symptoms are seen where both the long bones and the spleen are radiated. We have seen numerous patients lead an active life for 5 or 8 years. Frequent blood examinations are to be made as an index to the patient's condition. Blood changes are present before symptoms appear.

In the non-malignant uterine affections cures can be obtained with the proper use of the x-rays but we are convinced that radium is the preferable agent and much easier for the patient.

In the essential hemorrhages of the adolescent, it requires only minute doses causing no concern about the future menstrual life or the child bearing function. Radium is as near a specific as one can expect.

Hemorrhage at the menopause can be



quickly and permanently relieved by the judicious use of either x-ray or radium giving a permanent amenorrhea. The greatest objection to radiation therapy to the female generative organs is arriving at a correct diagnosis. It requires judgment in selection of the cases. A gynecologist trained in radiation therapy or a radiologist trained in gynecology is essential.

#### MALIGNANCY

In malignancy the x-ray is our greatest palliative measure and the only one that has stood the test of time. No one can treat malignancy without the use of surgery, x-ray and radium frequently using all three of these agents on the same patient in the course of a few weeks. The greatest field for the x-ray is in the metastatic tumors involving the regional lymph nodes secondary to carcinoma of the breast, cancer of the cervix and in the primary lymphnode malignancies such as lympho-sarcoma and Hodgkins disease and in the allied conditions, the so-called blood malignancies.

#### RECURRENT CARCINOMA

In recurrent carcinoma of the breast great relief is obtained by implanting radium needles into the recurrent buttons for a few hours time. This can be easily done under local anesthesia, leaves a very flexible scar and affords to patient a great deal of comfort. We have found implantation of radium needles to be of greater service than removal of these metastatic nodules by surgery or by cautery. It is also superior to the topical application of radium or the x-rays.

**Tuberculous Peritonitis.**—Warner reports a case of tuberculous peritonitis in which there were present all the classic symptoms and signs of celiac disease. The patient was a girl who developed the disorder at the age of 2 years and 4 months. There was marked hypotonia and wasting, especially of the glutei. The stools were large, bulky, pale, mucoid and offensive, and consisted largely of split fat in the form of soaps and fatty acids. The abdomen was much distended with gas. The mental state was typical of the celiac child and there was a tendency to rachitic changes in the bones. The picture seemed complete, as there was no roentgen evidence of diseased abdominal lymph nodes, yet at necropsy an extensive tuberculous peritonitis was found, without any calcification in the nodes. The only points that were in favor of a diagnosis of tuberculous peritonitis in this case were the height of the pyrexia and the rather rapidly fatal termination of the disease.

## DIAPHRAGMATIC HERNIA

### A CASE REPORT\*

K. ARMAND FISCHER, M. D.

Louisville.

Diaphragmatic hernia occurs more frequently than it was formerly thought. However, it has been estimated by Sisk (1) that not more than one thousand cases have been reported since 1920. Sanders (2) writing recently in the *Annals of Surgery* urges the detailed report of diaphragmatic hernia, while Haberer (3) refuses to preface his case history with an apology and deplors the possibility of any such case being lost in statistical summaries before it has been reported in detail. So with these facts in mind I am presenting this case record in detail for your consideration.

The patient entered the hospital, November 30th, 1929, at 11 P. M. with a history of having been injured in an automobile accident about one hour previously. He complained of pains in his left chest, arm and head, and shortness of breath. He was not very informative.

Physical examination revealed a strong, robust male negro, forty-six years of age. The pulse rate was 120 per minute, temperature 98 degrees, and respiratory rate 30. He was apparently under the influence of alcohol. There was ecchymosis of the eye lids and marked conjunctival ecchymosis of the right eyeball. The pupils were equal and reacted. There were numerous small lacerations on the face. The left chest appeared sunken and air crepitis was felt throughout that side, extending up into the neck and down the abdomen, as far as the umbilicus. Light percussion revealed a hyper resonant note throughout the left side of the chest, anteriorly up to the third rib. The heart was apparently displaced to the right. Breath sounds were absent throughout the hyper resonant area. We felt that the patient had a massive pneumothorax resulting from the fractured ribs.

Examination of the left arm revealed a fracture in the middle third. Numerous contusions and small lacerations over the body were found. Otherwise negative.

Because of the patient's general condition the treatment consisted of strapping the left chest, placing the arm in a plaster splint, and a back rest for orthopnea. Likewise measures were used to combat shock.

Nine hours later his general condition had improved. The shock had disappeared but

\*Read before the Jefferson County Medical Society. †

the patient was very uncomfortable. An x-ray examination of the chest showed what was thought to be either a diaphragmatic hernia or eventration of the diaphragm, the shadow extending up to the level of the second interspace. The second to the ninth ribs on the left side, medial to the posterior axillary line, were fractured. The left border of the heart was displaced to the right of the sternum. Inspection showed the point of maximal intensity of the apex beat, in the right fourth interspace, one and one half inches medial to the nipple line. Breath sounds were absent anteriorly and in the axillary line, below the third rib. Amphoric breathing was heard posteriorly up to the



X-Ray on admission, showing dilated stomach in chest cavity

above the diaphragm. With these findings we were convinced that we were dealing with a ruptured diaphragm.

On December 21st, 1929, percussion revealed flatness in the left chest. There was no respiratory embarrassment. A chest x-ray December 31, 1929 showed complete opacity in the left chest. The chest was aspirated and 1000 c c of straw-colored fluid was removed within two days. We were unable to obtain any more fluid from the chest on following attempts. The x-rays taken January 22nd, 1930 showed only a small amount of fluid in the left pleural cavity, with almost complete clearing of the left lung field. At this time the patient was told that his diaphragm was thought to be ruptured and that repair was essential, but he refused surgical intervention.



X-Ray showing left pleural effusion

The patient had been operated previously by Dr. Verne Hunt of the Mayo Clinic for chronic appendicitis. A communication from Dr. Hunt assured me that no congenital deformity of the diaphragm existed at the time of the appendectomy. A chest plate made at the Mayo Clinic was normal.

The patient was allowed to go home February 7th, 1930, in fair physical condition feeling strong and not dyspneic. The heart had changed its position very little. There was marked clearing of the percussion note in the left base and distant breath sounds were heard here. A chest plate revealed the lung clear with the position of the diaphragm and mediastinal structures as previously reported.

He returned monthly for examination,

seventh rib on the left side. Gas sounds were heard in the base of the left chest posteriorly. Cyanosis and dyspnea had disappeared. Apparently no digestive disturbances or obstructive signs were present which would suggest the protrusion of a viscus through a diaphragmatic opening. Symptomatic treatment was continued.

The patient's general condition improved gradually. The subcutaneous emphysema disappeared and he could lie flat in bed. At this time impaired resonance was discovered in the left chest posteriorly, near the base in the axillary line. On December 18th, 1929 he was given a barium meal, and barium in the stomach reached to the level of the third rib, anteriorly. The small and large intestines were visualized below the diaphragm and there was evidence of considerable pleural thickening with a small amount of fluid



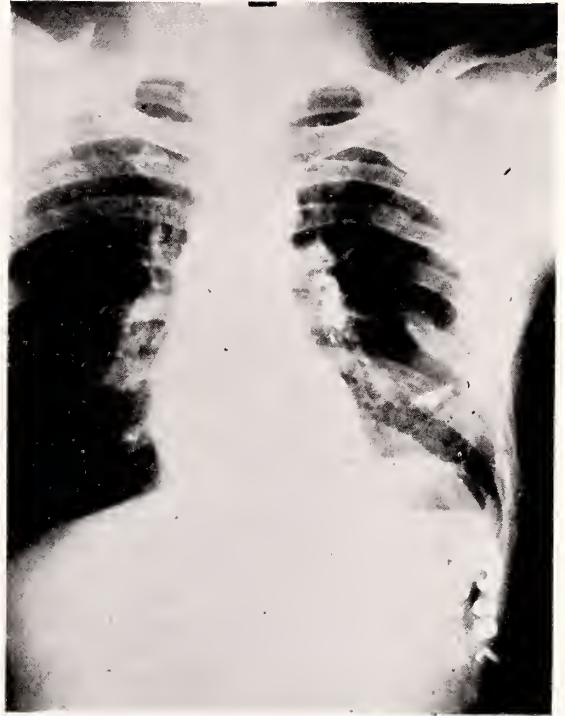
complaining of belching and loss of appetite. On May 4th, 1930 he had attacks of gripping abdominal pains and distension of the abdomen. After a similar attack he reentered the hospital on June 3rd, 1930, seeking relief. He consented to be operated, but owing to his rundown condition, the operation was deferred until he was in a better physical condition.

June 16, a pneumoperitoneum was carried out and x-ray and fluoroscopic examinations made. This revealed definite evidence of herniation of the stomach and a portion of the large bowel, through the diaphragm. The passage of air into the left pleural space from the abdomen produced practically a complete collapse of the left lung. The patient complained of great chest pain during and after the injection of air into the abdomen.

June 18th, we explored the abdomen through a left rectus incision, under spinal anesthesia. There was a hole in the diaphragm about four inches in diameter, which extended medially to the esophagus. Through this opening, about half of the small intestines, a portion of the transverse colon and the major portion of the stomach were protruding into the pleural cavity. The small intestines could be reduced into the abdominal cavity, but there were adhesions between the stomach, colon and the diaphragmatic opening. The adhesions were very tough and could not be loosened through the abdominal route. So the left ninth rib was resected from the costo-chondral junction, posteriorly, for a distance of about six inches and a chest retractor was placed in. This procedure allowed of a very good exposure. The stomach was found adhered to the left lower lung lobe. The adhesions were separated by dull and sharp dissection. The stomach and other abdominal organs were replaced and the diaphragmatic opening sutured through the chest opening with two layers of double chromic catgut, with one layer of heavy silk on the pleural side. The chest cavity was thoroughly wiped out and closed. Then the abdominal wall was sutured after assuring ourselves that the stomach and other viscera were intact. The left phrenic nerve was crushed so as to place the sutured diaphragm at rest.

The patient had several stormy and uncomfortable days, but he made an uneventful recovery. The lung inflated itself promptly. A small amount of fluid formed in the chest, which persisted for a number of weeks. At one aspiration only 10 c c of blood tinged fluid could be removed and no further attempts at aspiration were made. The patient has been examined frequently since the operation and he has had occasional pains in

his left upper quadrant. There have been no signs of obstruction. Digestion is good. At the last fluoroscopic examination in December,



X-Ray six months after operation, showing abdomen viscera below diaphragm

1930, six months after operation, the diaphragm was immobile. The abdominal viscera were below the diaphragm. The patient has returned to his former occupation and is able to do moderately heavy work, as a janitor.

#### CONCLUSIONS

The case presents several very interesting features:

1. Severe trauma resulting in fracture of eight ribs on one side and left arm; subcutaneous emphysema, rupture of diaphragm with diaphragmatic hernia and collapsed lung.

2. Formation and retention of fluid in the pleural cavity. The adhesions between the abdominal viscera and the edges of the ruptured diaphragm in all probability prevented the pleural fluid from escaping into the peritoneal cavity.

3. The recovery following such extensive trauma and the subsequent major operative procedure.

#### BIBLIOGRAPHY

1. Sisk, J. Newton. "Diaphragmatic Hernia" Report of three cases, *American Journal of Surgery*. Vol. IV, page 67, 1928.
2. Sanders, R. Lee. "Diaphragmatic Hernia" *Annals of Surgery*. Vol. XCL, page 367, 1930.
3. Haberer, H. Quoted from Article No. 2.

# HEMOLYTIC STAPHYLOCOCCUS SEPTICEMIA, AUTOPSY REPORT AND CASE SUMMARY\*

G. G. ALTMAN, M. D., F. A. C. S.

Louisville.

The patient, M. J. S., was admitted to the Jewish Hospital, evening of November 7th, about 4:00 o'clock, and seen in consultation with Dr. Kenneth Kinniard and Dr. C. W. Karraker at 8:00 P. M.

Male, white, age forty-two, Jewish. Seen in state of definite marked rigor, cyanotic, unconscious, foaming at mouth, labored, shallow, rapid breathing, cold clammy perspiration. General symptomatology of marked prostration. Axillary temperature 103; pulse feeble, rate 160; respiratory rate 40 to 60.

## HISTORY

History of having had a furuncle on back of neck for past three days, having been treated at home by wife, who resorted to squeezing and other household applications, with no relief. On morning of November 6, Dr. Kinniard was called and made incision into infected area and drained same. Urinalysis at that time was essentially negative according to Dr. Kinniard's findings. Several hours afterwards patient developed temperature and chill. Condition grew rapidly worse until state in which he was admitted to hospital in the evening.

General physical examination revealed fluid filled bases of pleural cavities and marked congestion throughout both lungs, with definite moist rales and other features of pulmonary congestion. There was no nystagmus. Pupillary reactions to light were normal. Other features of neurological examination were essentially negative. There was not sufficient indication to warrant diagnosis of cerebral disturbance.

## DIAGNOSIS

Acute fulminating hemolytic streptococcic septicemia was made.

## TREATMENT

Patient given 2 c. c. Digifolin by hypodermic. Morphine grains 1/6, Atropine grains 1/100, Camphorated Oil 10 c. c. subcutaneously, and 1000 c. c. of 5% Glucose in Saline. Oxygen tent placed over patient's head. Condition was immediately improved until rigor and cyanosis disappeared. Pulse rate fell to about 100 and respirations 30 to 40. Consciousness was not resumed however. Patient lingered in this state until 9:30 A. M. following day when temperature rose to 108 and he ceased to breathe. Blood culture specimen was taken by Dr. Weeter. Urin-

alysis following admission showed red discoloration, albumin three plus, sugar three plus, acetone three plus, and microscopically there were numerous red blood cells, and pus cells, and many casts, varying from the hyaline to the coarse granular type. Blood sugar estimation, which was made about forty-five minutes after the hypodermoclysis of Glucose solution, was 190 mgm. per 100 c. c. of blood. Two subsequent urinalyses made three and five hours later, on catheterized specimens, still showed sugar and acetone three plus. Insulin 30 units, thereafter 10 units hourly and hypodermoclysis of Glucose and Saline continued throughout night.

Autopsy Findings: Man, apparently forty years of age, weighing about 160 pounds, and about five feet ten inches in height, well developed, well nourished, marked purpuric areas throughout body and extremities.

Definite induration throughout posterior aspect of neck, extending to margins of sterno-cleido mastoid muscles on both sides, with wide spread purpura, erythema and ecchymotic spots. Incision made from sterno-clavicular articulations on both sides down to sub-sternal angle, and thence to Symphysis Pubis.

## LUNGS

Pleura cavities filled to capacity with serous fluid; numerous small adhesions in both bases. Lungs swollen and congested; no crepitus; numerous petechiae beneath visceral pleura. Cut surface resulted in ready exudation of dark, purplish, bloody fluid, and all evidences of hemolytic congestion throughout both lungs.

## HEART

Heart is normal size, of firm consistency and lying in normal position, not opened but palpation of right ventricle indicated a clot. Mediastinal cavity filled to capacity with serous fluid. Pericardial cavity filled to capacity with serous fluid.

## LIVER

Swollen, tense, slightly enlarged, definite sharp edges, petechial hemorrhages on surface, section shows definite congestion.

STOMACH: Normal size. Examination of mucosa reveals old ulcer on posterior surface near lesser curvature of about two and a half by one centimeter in size.

GALL BLADDER: Small, distinct, no stones, empties readily.

PANCREAS: Swollen; definite congestion.

SPLEEN: Enlarged to about one and a half times its normal size. Section gives ready exudate of dark hemorrhagic fluid material.

KIDNEYS: Left kidney normal size, capsule very tight. Cut surface reveals marked hemorrhagic congestion and ready flow of bloody exudate. Left kidney shows an ap-

\*Read before the Seventh District Councilor Meeting, Crab Orchard, July 22, 1931.



parent congenital anomaly. Two definite small kidneys adherent, the upper pole of the lower to the lower pole of the upper. There seems to be two separate pelves and two separate ureters about three centimeters in length, each combining to form a common ureter.

#### URINARY BLADDER AND PROSTATE

Negative. The area on back of neck, following pressure, yields a greenish yellow, blood streaked, purulent exudate from which smear was made and sent to Dr. Miller at City Hospital.

#### DIAGNOSIS

Acute fulminating staphylococcic septicemia, furuncle posterior aspect of neck, chronic gastric ulcer, diabetes mellitus.

#### COMMENT

The hemolytic phenomenon of staphylococcus at one time not recognized at all, is even now found comparatively infrequently. The property of staphylococci to cause hemolysis was noticed in 1900 by Kraus (1), following which Ludwig (2), Neisser and Wechsberg (3), Julianelle (4), Hiss and Zinsser (5) and others, arrived at similar conclusions, these being that the resistance of the individual is of definite quality in the determination of staphylococcic action. In short, an ordinary pyogenic staphylococcus may in the presence of lowered resistance of the host, due to definite disease, cause acute fulminating process, because of hemolytic action of *Staphylococcus Aureus*. Of course, it is possible that a great many hemolytic staphylococci cases have been interpreted as streptococcic processes because of our greater familiarity with the latter organism. We have long ago proved the hemolytic qualities of certain strains of streptococci in pure culture and by animal inoculation. This has not been found true of staphylococcus. On this account, no doubt, many a fulminating hemolytic septicemia has been accepted as due to a streptococcic infection and many a blood culture has been neglected, the hemolytic process being regarded as sufficient evidence that the causative organism was streptococcus.

However, here we have a case in which the organism without a single doubt was staphylococcus. That the organism was fulminant and hemolytic is absolutely proved by the clinical history and the autopsy findings. The blood culture made by Dr. Weeter on brain veal agar proved to be an uncontaminated hemolytic staphylococcus. Permission for autopsy was gained at the last minute only. This was done in the undertaker's morgue. In order to speed matters, I borrowed a pair of ordinary short gauntlet gloves and a half sleeved gown from the undertaker and went to work. It is interesting

to note that within three days afterwards, I observed numerous pustules on my wrists just above the levels reached by the gauntlets of the gloves I used. There were several more similar areas about both forearms where the blood saturated sleeves of the gown I used had come in contact with the skin. There was some elevation of temperature and a general malaise. Culture from these pustules made by the Martin-McNeill Laboratories, revealed a non-hemolytic staphylococcus. The smear taken from the lesion on the patient's neck was identified by Dr. A. J. Miller of the Louisville City Hospital as staphylococcus.

Evidently we had here an ordinary pyogenic staphylococcus, which had found an unusually fertile host in this diabetic. With these conditions favoring its rapid activity: i. e., its initial virulence and the host's lessened resistance, it is most probable that the organism under went a metamorphosis, as it were, and assumed its fulminant and hemolytic qualities. From the above it is apparent that the postulates of Koch were satisfied excepting the repetition of the hemolytic process in another animal. For this purpose, I believe that a condition similar to the lowered resistance that we found in this case would be necessary.

#### LABORATORY REPORT

Mr. Jacob Strauss,  
Room 123, Jewish Hospital.

Service—Dr. C. G. Altman.

Specimen—Blood culture made November 7, 1930.

#### Report:

Blood culture — *staphylococcus aureus*, hemolytic strain.

Positive in 2 c c blood planted on brain veal agar and in 8 c c blood planted on dextrose brain heart infusion broth.

HARRY M. WEETER.

#### BIBLIOGRAPHY

- (1) Kraus, Wien. klin. Woch., iii 1900.
- (2) Ludwig, Wien Klin Wchnschl, 1902, XV, 382.
- (3) Neisser and Wechsberg, Die Staphylococci. Handb. d. path. Mikroorg., Aufl., 1912, IV, 355. Deut. Med. Woch. 1900. Zeit. f. Hyg., 36, 1901.
- (4) Julianelle, Jour. Infect. Dis., 1922, 31, 256.
- (5) Hiss and Zinsser, Text of Bacteriology 1924, 5th edition.

#### Relation of Phrenicotomy to Cardiospasm—

In order to get some data on the possibility of cardiospasm following phrenicotomy, Ernest got in touch with 179 patients who had been subjected to this operation during the years 1921-1929. Those operated on recently were examined with the roentgen ray. In none of the 179 cases was there any evidence that cardiospasm had supervened following the operation; however, it is important that phrenico-exeresis should be performed only after indications have been weighed carefully and it is determined definitely that the operation can and should be done.

## ACUTE ABDOMEN\*

CLIFTON G. FOLLIS, M. D.

Glasgow.

The subject of "Acute Abdomen" is an ever popular subject. It appears on the program of practically every session of every large medical society of the country. One of the chief reasons for this is the magnitude of the subject, for discussion of the differential diagnosis and treatment alone can easily fill volumes; then like the poor the acute abdomen is always with us. From what has been said of the magnitude of the subject it is obvious that in a paper of this sort the discussion must be further limited and not every angle of acute abdomen be discussed. The purpose of this paper is to emphasize early diagnosis and treatment.

The acute abdomen as defined by Cope is a condition of a previously fairly-well patient having severe abdominal pains for six hours and needing surgery. But even such a definition like this is ambiguous, for the surgery need not be required immediately to be included, and therefore such conditions as gall-stone colic and acute salpingitis are included. This definition necessitates the employment of differential diagnosis, for the qualifying phrase, of "needing surgery," automatically rules out lobar pneumonia, pyelitis, and other conditions causing acute abdominal pains, but belonging to the field of internal medicine. So it is seen that such a definition merely means that such a case is a problem for immediate diagnosis.

Diagnosis has always been recognized as one of the greatest problems of medicine, but today it is stressed more than ever. A larger part of the modern text book is devoted to diagnosis than to any other one subject. Practically every medical school of today dwells on diagnosis and scarcely mentions treatment on the assumption that, if a doctor can diagnose correctly, and understands pathology, physiology, and anatomy he can treat the case properly by deduction. Osler states that about 50% of diagnoses are correct. Harbin brothers in their report of seven hundred cases give an error of 21% in diagnosis. Long has it been known that most of the cases of so-called "acute abdomen" are in reality acute appendicitis and many surgeons placing their bet on this high percentage winner are guilty of "guessing" appendicitis and then doing an exploratory laparotomy to see what is the pathology. Then how can we increase our percentage of correct diagnosis? The answer is a greater ef-

fort and a more serious attempt to diagnose correctly. This can best be done by obtaining and properly evaluating a more careful history and doing a more complete physical examination routinely. Emerson states that 50% of the diagnosis should be based on history of the case, 40% on physical examination and the remaining 10% on laboratory of all kinds including urine analysis, blood tests and x-ray. Sanders, in the discussion of his five hundred cases of gall-bladder surgery states that the necessity of operation should be determined by the clinician, who knows the history of the case well, rather than by the surgeon.

The manner of history taking and its essentials cannot be taken up in this brief paper; the details are too numerous. But suffice it to say that a perfect history can be taken only by one who has all of the possible diagnoses in mind. For example a clinician who never thinks of pulmonary tuberculosis as a possible diagnosis is unlikely to ask about pulmonary hemorrhage and consequently may not obtain such a symptom in the history. No one except the diagnostician can properly take his patient's history. In other words history taking is no errand for an office girl, a nurse, or even an assistant. Every doctor can improve his diagnostic ability by always taking a careful history.

The chief point to be made concerning a physical examination is to be thorough always. Rectal examinations, vaginals, and many other things should become just as routine as taking the temperature and pulse. Also there is an unrecognized value in repeated examinations in case of a doubtful diagnosis. Early hospital work taught the writer that symptoms in an acute abdomen often change rapidly and go through cycles. Often has he seen internes disagree as to the point of great muscular rigidity and find on repeated examinations immediately still different muscles rigid. However, it is reasonable to assume that in case of acute appendicitis the position of the appendix is often changed by peristalsis which fact may easily account for variations in degree and location of rigidity.

It was a very commendable report, full of information given by Harbin at the 1930 session of Southern Medical Association, an account of 384 cases operated within 24 hours of onset of symptoms without a single death. Also, he reported 848 cases operated after more than 24 hours from onset with a mortality of 7.3%. This data itself is a very good reason for operating an acute abdomen early. This increase of mortality rate is explained largely by the fact that after 24 hours 48% of appendix cases had perforated. A startling fact is the statement that twelve and one

\*Read before a joint meeting of the Barren County Medical Society and the Staff of the Community Hospital at Glasgow, February 18, 1931.



half per cent of the early cases (operated within 24 hours) were ruptured. If the general practitioner and public could realize that one-eighth of all cases perforate or leak in the first 24 hours there would be more early operations, and a decrease in the death rate. The knowledge of this one danger should be sufficient to cause every doctor to investigate every abdominal pain and diagnose all cases within the first 24 hours. The pulse, and temperature are not safe signs to rely upon as indications for immediate surgery; they invite too much optimism. The temperature may be normal and usually is early in the attack of appendicitis. Perforation may occur and exist for several hours with a normal pulse or perhaps 80 to 90. The one and only safe thing to do is to diagnose and operate these cases in the first 24 hours. The doctor of today has fewer reasons for neglecting cases of acute abdomen than ever in history. The doctor of olden times who rode a horse all day long through rain and mud and then came home late at night only to find some one calling him many miles away to see an acute abdomen, was justified perhaps to delay the trip and diagnosis and indirectly cause the patient's death by allowing perforation. Probably there was no place or surgeon to operate. But today, when there are good roads, automobiles, and office and hospital facilities in reach of every one, it is almost criminal to delay diagnosis of any acute abdomen by giving a cathartic, administering a narcotic or otherwise playing for time.

Much of the decrease in death rate of surgical cases in recent years has been because of early diagnosis with immediate surgery. It has been only a few years since fecal vomiting was considered one of the important signs of intestinal obstruction; now it is considered a serious mistake to wait until such a sign develops. Gangrenous intestines from strangulated hernias are now rare, where they were frequent a few years ago. Now many men advocate cholecystectomy during the first attack of gall-bladder disease. Surgery is changing.

Aside from the previously mentioned advantages of early surgery there is an economical help; the cost of an early operation is much lower than a perforated case requiring a long hospital stay, protracted medical care, and many more weeks loss of work. Then too, there are often reflex symptoms in chronic cases such as hyperacidity, achylia, spastic pylorus, etc., which persist long after surgery and which probably would never have developed if operated early.

There is no need so great probably as that of public education along the lines of early surgery. The problem will never be solved

until the public realizes the importance of early diagnosis and demands it. The best agent for this educative process is the doctor. If he stressed the importance of an examination and early diagnosis emphasizing the possibility of a perforated appendix in every telephone and office call concerning abdominal pains the condition would be changed completely in a few years.

#### SUMMARY

(1) An acute abdomen is not necessarily a case for immediate operation but is a problem for diagnosis.

(2) A diagnosis should always be made in the first 24 hours, remembering that after this nearly 50% perforate and before this 12½% perforate. Do not temporize by using morphine or cathartic.

(3) It is the duty of the physician to see acute abdomen cases sooner by educating his public to the necessity of investigating all abdominal pain which lasts for six hours.

#### SOME OBSERVATIONS ON RECENTLY DISCOVERED ENDOCRINE DISEASES\*

G. J. HERMANN, M. D.

Newport.

In presenting this paper I shall avoid as much as possible reference to the thyroid syndrome because you are all familiar with this much discussed subject.

We have long been familiar with the clinical syndrome first described by Addison. We have become well acquainted in recent years with the insufficiency of the Islands of Langerhans in diabetes, and with the insufficiency of the parathyroid in certain forms of tetany.

But the antitheses of these well known syndromes, the clinical state, that is, of over-function of the adrenal gland, the Islands of Langerhans or parathyroids have until very recently escaped detection. The tardy recognition of these symptoms is explicable by their relatively infrequent occurrence, and yet once the attention of the profession is directed to them, it may be that their incidence will be found to be greater than we now suspect.

Certainly in view of our experience with over-function of the thyroid and the pituitary, we have no theoretic grounds for failing to anticipate hyper-function in cases of these other endocrines.

We shall try to confine ourselves to the over-function of the adrenal gland, the Islands of Langerhans and parathyroids.

The adrenal gland is a double organ. Its

\*Read before the Campbell-Kenton Medical Society, at Newport, March 17, 1931.

cortex and medulla are morphologically distinct, arise independently and function differently.

These glands are situated above each kidney and are composed of two definite, clearly defined parts. The outer portion called the cortex, and the inner portion called the medulla. Their functions are entirely separate and distinct. The cortex which is the part indispensable to life, exercises an important influence on the growth and development of the sexual organs. There is some evidence of a detoxicating function of this part of the gland. It is closely related in function with the hypophysis, gonads and thyroid. The adrenal medullary liberated an internal secretion, epinephrine, the chemical structure and pharmacology of which is well known. Adrenaline has been shown experimentally to increase the consumption of oxygen in animals, to increase the absorption of oxygen and oxy-hemoglobin. The latter effect probably takes place in the blood passing through the lungs, thereby constituting an important factor in respiration.

The emergency theory of the adrenalin was first prepared by Prof. Cannon of Harvard, who regards the epinephrin productions as an emergency mechanism for augmentating the existing forces and functions of the animal organism in time of stress. The primary nervous stimulus causing the physiological changes necessary for assembling the animal resources are furthered and continued by the secondary liberation of adrenalin, which accentuate the action of the vegetative nervous system, in putting the organism in a condition of quick reaction and makes possible a quick expenditure of energy to meet the needs of the environment. The adrenalin gland has been designated by some investigators as the gland of fight and flight. A large cortex implies a combative disposition and a thin cortex, a submissive nature. We shall just mention Addison's disease here as being due to a slow degeneration of this gland and insufficient adrenalin secretion. You all know the classical symptoms are great asthenia and bronzing of the skin. The clinical types of the adrenalin medullary unbalancing can also be divided into the hyper and hypofunction. When the gland is over active we are liable to find arteriosclerosis, vascular hypertension. Associated sclerotic nephritis and the heightened activity of the sympathetic nervous system. When the gland is underactive you find pigmentation of skin and mucous membranes, asthenia and muscular inefficiency, vascular hypotension, under development of sex organs and hypoglycemia.

The hyperfunction of the cortex creates sexual precocity, increased growth of hair

and secondary sex character. The lack of function is associated with a lack of sexual development. Adrenalin may be given either hypodermically or orally, the average dose is five minims of a 1:1000 solution hypodermically or 15 minims orally. It is especially useful in asthma and low blood pressure. It has been demonstrated by Cannon and his co-workers that the adrenalin secretion is stimulated by pain, excitement and anxiety. He also demonstrated the adrenalin had been injected into the blood stream. Adrenalin also relieves and alleviates fatigued muscles. Upon the basis of these findings it may be presumed that there is an increased secretion of adrenalin during labor. It would increase the tone of the uterus also the force of the contraction of the abdominal muscle, and decrease the coagulation time of the blood during and after labor. Labbe, Tinel and Dunmar reported the first instance of paroxysmal hypertension associated with medullary tumor. The patient was a woman of 28, who for several months suffered with attacks of nausea, vomiting and cold extremities, the blood pressure in these attacks rising from 150 to 270 or over, and the urine containing blood. The final attack terminated in pulmonary edema which caused the patient's death. The autopsy revealed a tumor of the medulla of the left adrenal, the size of a large plum and multiple hemorrhagic infarcts of the kidneys.

In the case of Oberling and Jung, a woman of 28, close to her term of her second pregnancy was found to have a blood pressure of 250/190. This blood pressure fluctuated for the next few days between 170 and 220. The patient went into a state of shock after delivery with a pulse of 150. She died and the autopsy revealed a medullary tumor of the left adrenal the size of a kidney.

I shall report one more case which is very significant. This is known as the Mayo Case. The patient was a woman of 30 who for 18 months had attacks of palpitation of the heart. They occurred every day or two accompanied by precordial discomfort, occipital headache, a sense of choking, nausea, vomiting and clammy extremities; cough frequently occurred in the attacks with expectoration of frothy saliva tinged with blood. The blood pressure would rise in these attacks from normal values to 280/110, the capillaries of the nail-fold would be completely obliterated.

An exploratory laparotomy was performed because of some diffuse abdominal pain and because it was thought that some lesion of the splanchnic nerves might be responsible for this and account for the hypertension. Thus a medullary tumor of the left adrenal gland was found impinging on the upper



pole of the left kidney. It measured about 2½ inches in diameter. The removal of the tumor in this case was followed by a complete cessation of all the symptoms of paroxysmal hypertension and associated symptoms. The patient apparently regained perfect health. This is without a doubt the most important evidence thus far obtained in support of the view that certain forms of hypertension may be due to the excessive secretion of the adrenal glands.

#### THE PARATHYROID

Our understanding of the function of the parathyroids has been advanced materially through the preparation of active extracts of these glands by Collip, Hanson and others.

When parathormone, the active principle of the parathyroid is injected into normal dogs, the concentration of the calcium in the blood rises. This is accompanied by an increased rate of calcium excretion by the kidneys and by the bowels. Thus a negative calcium balance is brought about and the bones begin to decalcify. Associated with the increased amount of calcium in the circulating fluid goes an increased flaccidity of the muscles and a change in muscle tone, a picture the opposite of that observed in the tetany of parathyroid deficiency when the blood calcium is low and muscle tone high. The blood phosphorus is depressed by parathormone, yet a negative metabolic balance results for phosphorus as well as for calcium.

It is probable as will be shown that an oversupply of parathyroid hormone may come from morphologically normal glands, but in the majority of cases recognized to date actual tumors of the glands were demonstrable.

Schlagenhauer of Vienna in 1915 was the first to recommend the removal of palpable tumors of the parathyroid in a case of osteitis fibrosa, but the surgeon in the case rejected the suggestion as too radical and dangerous. It was, therefore, not until 1925 when Mandl operated in a similar case, that any clinical progress was made in this particular field. Since then a total of nine cases have been recognized and benefited by operative removal of parathyroid material.

Let us see what happens when we have a hyper secretion of the parathyroids. It produces calcium depletion and skeletal abnormalities are the most striking clinical features of the disease. A diffuse rarefaction involves practically all of the bones but especially the pelvic girdle. Bending and fracturing follow. The pelvis may be pressed in laterally imparting to it a wedge shape such as in rickets. The x-rays show a loss of the normal trabecular pattern and a thinning of the cortex of the shaft of the long bones.

Chemical analysis of these bones reveals not only a relative but an actual increase of organic material. The bones therefore are fibrous and not merely porous. This condition is classified as an osteitis fibrosa, a step beyond osteomalacia. The patient complains almost always that the bones are painful and tender. An important symptom of the disease is the loss of strength and flaccidity of muscles and reduction of muscle tone.

These symptoms are the reverse of those of parathyroid tetany.

The tumors of the parathyroids have been palpable in some cases but not in others. They are usually small, not over 2/5 to one inch in diameter. A surgical exploration is therefore necessary to identify them, and even a operation careful search is required to find them. The events that follow the excision of the tumors of the parathyroids are startling.

The importance of the two endocrine disturbances considered is enhanced by the fact that the treatment is satisfactory in each of them.

Where tumors were responsible the direct surgical attacks have been highly successful. Where over function of the glands has been due to over activity of an otherwise normal gland, the results of surgical interference have not been so good.

#### TRANSPPOSITION OF VISCERA, CASE REPORT\*

DAVID C. ELLIOTT, M. D.

Louisville.

Mr. R. M. applying for a civil service position was subjected to the routine physical examination required of all applicants.

Upon general inspection of normal physique of a well developed white male, age 28, no deviations from the ordinary were apparent. All physical findings were negative with the following exceptions.

Thorax: Palpation under right nipple disclosed a diffuse pulsation, none being found on left side. Percussion demonstrated an area of cardiac dullness reversed as to position of the apex and heart borders, but normal in general outline. On auscultation in the 4th and 5th right intercostal spaces, the first sound of this heart did not seem as loud and clear as would be expected but was louder than the second sound. At the base, the second sound in the left second intercostal space was louder than the second sound on the right.

Abdomen: Percussion revealed liver dullness on the left and gas bubble of stomach

\*Case presented before Jefferson County Medical Society.

on the right. No further findings of any abnormalities were detected. Right testicle not lower than the left. Man is right handed.

Diagnosis: Complete transposition of the viscera.

The man was later studied with a complete x-ray examination of thoracic and abdominal viscera showing complete transposition without any evidences of pathological changes. An electrocardiogram showed inversion of waves P. R. T. in lead I; leads II and III were normal; typical of true dextrocardia.

Personal History: The usual childhood diseases; no trauma or operations; no recent serious illness. One male child living and in good health with no transposition in this infant. No history of twins on either maternal or paternal side of family.

### ACUTE PANCREATITIS\*

J. H. DUNN, M. D.

Arlington.

Each part of the body has its own special work to do, and, furthermore, it has to co-operate with all the other members of the body in order to bring about the great cycle of changes called metabolism. We have two great forces continually busy in the system working in opposite directions, one of which is busy building up tissue, while the other is busy tearing down tissue, the one being called catabolism and the other anabolism. When each of the organs of the body are performing their own tasks properly and are working in harmony with all the other organs, there seems to be brought about a reconciliation, as we might say, between the two factions, a condition which we call metabolism. It is because of this perfect co-ordination that interference with one organ not only disturbs its own function, but also has its effects on the entire system.

The theory that has been advanced as to how certain glands depend upon other glands for aid is that certain glands have an internal secretion that leaves the gland via the lymph-channels and is disseminated throughout the body to the various other glands.

The pancreas seems to have an outstanding work to perform in this great metabolic phenomena. This gland has an internal secretion known as insulin and an external secretion known as the pancreatic juice. When the pancreas is suddenly put out of business, there is an absence of pancreatic juice, thereby causing great gastric distress. The insulin is reduced to a minimum and the entire system becomes loaded with sugar. These are the two things that happen in acute

pancreatitis. The cause of this condition is unknown. There are a few probable causes given but nothing definite.

The pancreas lies just back of the stomach, and due to the fact that there are several other organs in close proximity to this gland which, when affected, produce similar symptoms, it is very difficult to recognize a case of pancreatitis. The following conditions are the ones most often confused with this disease: intestinal obstruction, acute appendicitis, a perforating ulcer, and cholecystitis.

Symptoms. The acute hemorrhagic type, which is the type I am trying to consider tonight, comes on about two hours after a hearty meal. It is very sudden and characterized by the most excruciating pain in the epigastrium. There is severe nausea and vomiting and symptoms of collapse. The patient is pale and the surface of the body very cold with a low temperature. There is extreme tenderness over the epigastrium. Rigidity of the abdominal muscles is very slight. The patient continues in this manner, as a rule, reaching a rapid and fatal termination in from two to four days.

#### TREATMENT

The treatment of this condition is principally surgical, and, even with this, the mortality is extremely high. The surgery consists of laparotomy, putting in drainage tubes to remove the infection as well as the pancreatic ferments. As to the medical treatment, morphine for relief of pain, stimulants, pituitrin if a low blood pressure is present, and Insulin are recommended.

#### REPORT OF CASE

On January 30, 1931, at 2 P. M. I was called out of town to see a lady who, as they said, was cramping and vomiting. On arriving I found a married lady age 51, who had passed the climacteric and had always been in perfect health so far as she knew until a few moments before my arrival. They said she ate a very hearty meal at twelve and was feeling fine till two, when she suddenly began vomiting and cramping. Her temperature was 96, pulse slow and weak, she was cold and covered with a clammy perspiration. She was pale and showed evidence of great shock. She was suffering intense pain in the epigastrium and there was marked tenderness over the upper part of the abdomen. Her white blood count was 17,000. I gave her 1-4 gr. morphine and repeated the dose in 40 minutes, also strychnine for stimulation. I left and returned at 6 P. M., four hours later. She had no relief of pain nor vomiting from the two previous hypodermics. I gave her another 1-4 morphine and repeated the dose in 40 minutes with no relief. I advised an exploratory operation as I could not make a diagnosis. She was brought into my place

\*Read before the Carlisle County Medical Society, March 3, 1931.



at 8 P. M. at which time all her symptoms were fast growing worse. Her blood count at this time was 36,500. The urine was loaded with sugar.

Dr. Walters from Mayfield was called and we operated, finding the pancreas dark and gangrenous. We put in drainage tubes and closed the wound, telling the family that it was hopeless.

The patient remained cold, the pulse steadily grew faster and weaker, and the vomiting continued, consisting first of green fluid and later blood. She soon developed a paralytic ileus, the abdomen distending to an enormous degree. The patient died at 7 P. M. on the 31st, just twenty-nine hours after the first symptom.

### THE PRESENT TREND IN THE TREATMENT OF TUBERCULOSIS\*

H. M. MEREDITH, M. D.

Scottsville.

It is the purpose of this paper to give thought to some of the more recent adventures and their results, in dealing with tuberculosis.

Much has been written and said in the past regarding this disease, and to rehash it in its entirety would be taking up unnecessary time here as it would take volumes, much of which we are familiar with. In going over the recent literature we find the investigators and writers have developed some outstanding facts which are really worth while, and much of what our former writers have had to say is to be happily forgotten.

These facts are along the line of prevention and treatment. First, in the prevention, we are aware that tuberculosis is a disease to which children are highly susceptible, and it is being proven that all cases possible have their inception in childhood, their pulmonary tissues being less resistant to the infection and especially are they susceptible following some other disease which lowers the vitality of the child, many of which are not recognized. Their susceptibility to the disease is so marked that frequently children of normal resistance and good state of nutrition acquire the disease by contact, running a rapid course and terminating in the direct infection of the meninges by the blood stream and death. This will apply to older children also, the infection may become localized in the peri-bronchial glands, frequently extending to the cervical and possible to the mesenteric, another type of cases, in which the child has a greater resistance or the in-

fection milder. Also in older children the infection may be confined to the lung tissue, a local cavity may become walled off and calcified. The infection may be quiescent for a long time and then light up, due to lower vitality through inadequate nutrition or a superimposed infection.

Therefore, the importance of early recognition of tuberculosis in infancy and early childhood, is second only to the prevention by guarding them from the infection by contact. In these early cases in children the x-ray and intra-dermal skin test are indispensable as our means of recognition of the infection. The x-ray usually shows the enlarged tracheo-bronchial glands and some infection about the hilum, however these glands may also become enlarged from chronic infections of the naso-pharynx and accessory sinuses. In these questionable cases the intra-dermal skin test is of particular value. The employment of a solution of the old tuberculin in the strength of 1-1000, .1 cc intra-dermally is the usual procedure employed.

In fact we would be better physicians if we would admit each of these suspected cases as being tubercular and treat them as such, until they are proven otherwise, instead of pleading them not guilty and lose the time in which the disease would make irreparable demands on the vitality of our patient. It is my belief that this same principle is no less applicable to tuberculosis of any age.

The next point with which we are impressed is the treatment of tuberculosis. After all is said and done the residue of the facts lie in just two things, rest and nourishment, as these comprise ninety-five per cent of the treatment. Therefore if we dispense with all the rest of the projected cures and treatments and concentrate on these two principles we will have fulfilled the ordinary requirements. Like other diseases, for which we have no specific, there are many remedies, with but few which are meritorious, therefore, any suspected case of tuberculosis should inaugurate these two principles, until you are able to clear every doubt to the contrary.

As to the place of treatment, this is a question confronting each of us frequently. The present consensus of opinion is, that the climate has but a minor consideration in the treatment of tuberculosis, as the essentials are the same in any locality, however, it must be admitted, that the sanatoria treatment in the incipient case has much to do in the education of the patient and this is not only for the benefit of the patient but of more importance to the contacts, especially to children.

Unfortunately, many of our patients are of an indigent type and are unable to obtain sanatorium treatment and we are forced to

\*Read before the Lower Cumberland Medical Society, at the Community Hospital, Glasgow.

treat them in their homes, at the expense of additional contacts, in the personnel of their families and friends. This should be given more than a passing thought by the physicians of this and adjoining counties, so that we may stimulate an interest which will lead to the addition of this institution for the care and treatment of these cases, as a case of appendicitis can much more successfully be operated in a home, than a case of tuberculosis can be treated in such a place under the present hygiene of the average home. There is no doubt that the sanatorium is the school of tuberculosis and all patients should be started out, at least, under the regime of sanatoria rule. After the disease has become quiescent, or after the patient has learned to live and respect others, then treatment may be carried out in the home.

Therefore I wish to emphasize the early recognition of tuberculosis as upon this will depend your mortality rate, the matter of nourishment, with which you are all familiar, the time of rest will depend on the individual case. This rest means absolute rest in bed, carefree, and no mental or physical exertion for a period, at least, weeks past all evidence of activity.

The outstanding accomplishment of our present phthisiotherapist is the employment of surgical aid to produce rest in the lungs. This was inaugurated some years since, but like other radical procedures, had to stand the test of time to prove its merit. The idea or procedure of the introduction of air in the pleural cavity for the purpose of collapse of the lung was for a time thought of as being applicable to one lung only, that is in unilateral cases, but more recently it has been proven to be applicable to bilateral infections as well, having due regard for an area sufficient to supply a safe breathing capacity. This has resulted in the saving of many lives, which were heretofore considered hopeless, this procedure is also recognized as our best agent in the control of pulmonary hemorrhage, especially in the unilateral cases. These determinations can only be reached by the aid of the x-ray, it is our only method of correct diagnosis in which we are enabled to determine the case in which the procedure is applicable to, as we must know the relative involvement of each lung, the presence of adhesions, the calcification of cavities, and when to add additional compression as well as to relieve an over compressed lung. This compression must be maintained for a period of one or more years, therefore it is a plea for the hospital or sanatoria treatment, and a competent master of surgical tuberculosis.

The procedure of compression is becoming each day more popular in the treatment of

incipient tuberculosis, as the lesion appears to heal more rapidly and the basic principle of rest is maintained in a mechanical way.

Permanent collapse of the lung by thoracic surgery to the affected side apparently is reserved to the well advanced unilateral cases, with adhesions or large calcified areas in which the collapse of the lung by air is difficult or where there is danger of rupturing the lung tissue, in addition the cases which will not respond to the artificial pneumothorax, thoracoplasty is indicated.

It is further noted that the procedure of suspending the action of the phrenic nerve, either by crushing, phrenectomy, or phrenicotomy, is an additional means of producing rest to the infected lung. The cutting of this nerve produces a paralysis of the diaphragm of the corresponding side, and is a necessary procedure prior to thoracoplastic surgery, however it is being used in the early unilateral cases to insure a more thorough state of rest to the affected lung. When the function of the nerve is suspended the diaphragm rises from the intra abdominal pressure and an added compression is obtained, which is usually at the most desired point, in the base.

Approaching my conclusion, two major research problems should be mentioned, to invite our continued observation. First, the laboratory development of the *Bacillus Calmette-Guerin*. Second, the relation of the leucocytes to tuberculosis infection. The *Bacillus Calmette-Guerin* strain has been so cultured by Calmette and others that its value as a prophylactic in the immunization of children in tuberculosis, is practically admitted by our leading phthisiotherapist however it is quite apparent that unless it is properly cultured on the specific media and method of Calmette it may become very unstable and a virulent strain be developed, as was recently evidenced abroad, in which disastrous results ensued after its use in the immunization of children for tuberculosis.

The second problem, the study of the leucocytes in their relation to tuberculosis has been reported and is being worked out by Dr Medlar and others, apparently has gained a substantial recognition as to its value, especially in the surgical aspect of pulmonary tuberculosis. At present its value will compare with that of the x-ray and fluoroscope in arriving at a determination in the general management of the case.

In conclusion I wish to stress the importance of isolation of children from tuberculosis, the early recognition of the disease, the value of the x-ray in diagnosis, the use of all the means at our command to produce rest and especially the importance of surgery in the selected cases. I do not wish to make the impression that surgery will cure



all these cases, but in well chosen cases the procedure may relieve annoying symptoms, prolong life and even restore earning capacity.

### ADULT TUBERCULOSIS\*

J. C. GRAHAM, M. D.

Webbs.

Perhaps there is nothing in medicine for which the general practitioner is consulted so often or our decision of such vital importance to our patients as in pulmonary tuberculosis.

We may call a case of typhoid, malaria or a case of scarlet fever, measles or pull a bone head in many other things in our practice of which we are heartily ashamed and still not do our patients any great harm but once we have made a decision that our patient has or has not tuberculosis of the lungs we have influenced his whole life in direct ratio to his faith in us.

A mistaken diagnosis and perhaps he drifts from one to another until the incipient case has become an advanced one and finally he is called from his labors or what is almost as much of a calamity to him and his friends he is treated for tuberculosis when no such condition exists and we have succeeded only in making a hypochondriac worthless to himself and friends and a nuisance to everybody.

Therefore, gentlemen, I feel my responsibility in these cases as much or more than any other that I am called on to diagnose. But how can the general practitioner make a reasonable accurate diagnosis in these cases of suspected tuberculosis of the lungs?

I have nothing new or original only the old means, history, inspection, palpation, percussion and auscultation.

History: In the family history I try to find whether there is anything in either the father's or mother's family to suggest tuberculosis in the personal history. I ask about the following questions:

1. What disease have you had?
2. Length of present illness?
3. What was first noticed?
4. Do you cough and the nature of the cough?
5. Do you expectorate mucus, pus or have you ever spat blood at any time?
6. Has there been any change in temperament or is the patient more given to outbursts of temper than is usual for him?
7. Does he complain of a poor appetite and have what he calls indigestion?
8. Has his voice changed or become more

husky than is usual?

9. Is his build a family characteristic?

10. Is he more easily exhausted after ordinary work than is usual for him?

11. Do you sleep well at night?

Then of course I take his temperature, pulse and blood pressure, a subnormal temperature 97.5 or a slightly elevated temperature with a low blood pressure 105 to 115 with an increased pulse rate if continued is suggestive of tuberculosis.

Inspection: The patient is now requested to strip to the waist and note is made of the prominence of the scapula and clavicles, the amount of fat on the chest walls, the direction of the ribs, the location of the apex of the heart, amount of expansion of the chest and whether the lung ascends above the clavicle.

Winged scapula may mean only loss of flesh from some cause while prominent clavicles with sinks above may indicate an obsolete tubercular lesion. Certainly if caused by tuberculosis it is an old fibroid condition with contraction of scar tissue compressing the apex of the lung and preventing it rising to the normal above the clavicle. While we know that this is an old lesion at the apex we are not to decide therefore that there is no activity in that apex but if the signs of activity are found that a reerudescence of the old lesion has occurred with a more extensive involvement of lung tissue at this site than is indicated by the old scar, while in the apex in which contraction has not occurred we may find activity but in these cases the lesion is small or of recent origin.

The vertebral ribs seen in some cases with lack of expansion of the chest is an indication of an old lesion which has ceased to be active in all probability and the fibrous frame work of the lung has contracted, lessening the size of the lungs and the chest has contracted to accomodate itself to the size of the lungs.

Palpation: Increased tactile fremitus may indicate either an old or a new process but we must remember that it is more distinctly felt over the right than the left apex. We may feel the muscle tension which I believe is more boardy in the old than in the new cases.

Percussion: By percussion we can find and outline area of relative consolidation and here the more nearly the consolidation resembles the pneumonic note the older the lesion. The process that shades into normal lung sounds is probably moderately active while sharply defined consolidations are apt to be ancient history and may tell the story of a battle that has been fought and partly won.

Auscultation: Have the patient relax

\*Read before Tri-County Medical Society, Campbellsville.

the muscles of the chest and shoulders as much as possible and breathe a little more rapidly and deeply than normally but be sure that he does not breathe noisily.

Then I try to find the normal breath sounds by applying the stethoscope to the chest above the base of the midaxillary line. If the breathing is loud and harsh on both sides the patient is probably not breathing right and is instructed to change until I think that I have the normal breath sounds and then he is instructed not to change during the examination and to this normal point I compare the sounds of the remainder of the chest, returning from time to time to compare other areas of the chest to this normal point. From this I work up, comparing the like points on the two sides giving attention to the character of inspiration and noticing in particular the length of expiration.

If rales are heard, pass up to the second interspace and direct him to exhale and cough.

Rales are generally heard more distinctly at the apex than elsewhere and are a sign of activity.

Change in breath sounds as well as rales and prolonged expiration when taken with other signs are indications of activity in a lesion, the difference being age and activity of the condition.

#### CONCLUSION

(1) To determine the extent and degree of activity of a given case requires painstaking examinations and is a time consuming affair but an opinion as to whether a lesion is active or not can usually be arrived at in a few minutes provided we are careful in making our examinations.

(2) It is to be understood that the rales used in this paper are fine crackling shower rales which persist.

(3) Prolonged expiration is due to the loss of elasticity of the lung from infiltration or fibrosis and may or may not be a sign of activity.

(4) A lesion with sharply defined edges is an old process while one that shades into normal lung is generally active.

(5) While of course the tubercle must exist before the rale, the fine shower rale is perhaps the earliest physical finding in tuberculosis.

(6) We should of course use every means at our command in examining the chest but I believe at present the stethoscope is our safest bet.

(7) Harsh breathing, prolonged expiration over the right apex without other signs is not necessarily pathological.

(8) The same sound at the second interspace close to the sternum is not pathological

but if these sounds are found outward and downward it indicates a lesion

(9) Clicks heard at the margin of the sternum during strong breathing or coughing with absence of other signs do not indicate a lesion.

(10) Sounds resembling rales heard at the base unaccompanied by other signs do not indicate a lesion.

(11) The same is true of sounds resembling rales heard at apex of the heart.

(12) Prolonged expiration at left base posteriorly limited to this region is not abnormal.

#### HEMORRHAGIC DISEASE OF THE NEW-BORN\*

J. F. STANDARD, M. D.

Elkton.

This disease has been regarded very lightly by the writer and seemingly by others from the small amount of literature on the subject, the reason probably being the infrequency with which these cases are met and the idea that little of benefit can be done where they do occur.

But recently an experience in my own family has impressed upon me the importance of freshening up on or rather really getting acquainted with this disease and the simple treatment that if instituted early may save a large percentage of these cases.

In some instances hemorrhage is so sudden and so profuse that successful treatment is impossible. But fortunately most of them are small in the beginning as with my own child, which case I will describe.

A boy, born Monday, November 26th at 10:30 P. M., plump and robust, and rather above the average in general appearance, so I thought. I felt very proud of such a fine looking son.

There had been a very easy and normal labor, no pituitrin had been given or anything else except a very little bit of chloroform on the last pain. There were only two strong expulsive pains and I intended giving some chloroform on the last, but it was so quick there was not time for one good inhalation.

The only unusual feature, except a severe cold in the mother, in the family history, labor or pregnancy was an occurrence about six weeks before the baby was born. One night as we were coming into town, some boys were rocking automobiles and threw into my car, cutting two of my children badly. We thought one little girl, who was cut in the head would die at once. My wife was

\*Read before the Todd County Medical Society.



so shocked and upset from that, that she occasionally had pains until she got into labor, which was about ten days sooner than we expected.

From time of birth up until end of second day he did very little crying, but at end of that time would cry very hard occasionally.

On Wednesday afternoon, after a hard spell of crying he spat up a few drops of blood-stained mucus, at several different times. On Thursday there was no blood noticed at all, and I think it was on this day that I had Dr. Boone to stop in with me to see him as he was passing. The baby seemed to be doing well at that time and I rather wanted to show my new baby off when I asked him to stop.

Dr. Boone suggested if any more blood passed, that I give hemostatic serum. The baby continued to do well until about 8 P. M. the next day. At this time when it was about four days old, considerable blood was vomited. In about fifteen or twenty minutes I gave about two-thirds of one c. c. of hemostatic serum, two c. c. being all that I could secure at that time. In about an hour or hour and a half, hemorrhages began from the bowel. One bloody stool succeeded another until by seven the next morning there were about twenty of them ranging from one drachm to about two ounces in quantity. About three or four times in night blood was vomited, this being somewhat lighter in color than that from bowels and all of it showing little tendency to clot.

The plump baby that had been, was now a little shrunken mass of skin and bones, barely alive.

About one in the night, I gave nearly all the remainder of the hemostatic serum. During the night I gave one dose of ergotin and hydrastin but this was vomited along with blood.

He was restless and crying nearly all night. To quiet him and check peristalsis, I gave paregoric often.

The last large hemorrhage was about six A. M. on Saturday, when he was five days old. At this time he was almost lifeless. That morning I gave more hemostatic serum and some adrenalin chloride. I gave more adrenalin about the middle of the day and more hemostatic serum the following day.

The baby lived and now it is as fine a kid as you usually see.

I feel that the hemostatic serum with the paregoric to prevent the hard crying, is all that saved its life, though the amount of hemostatic serum was much less than I now think should be given. Five c. c. is a large adult dose, but that amount given intravenously

early would probably save at least 50% of these cases.

If hemostatic serum is not at hand or even if it is at hand, do not despair, for human blood used early, will generally check the hemorrhage, whether it be gastro-intestinal, submucous, cerebral, or other. The mother can easily spare from fifteen to twenty-five c. c. of blood and this is to be injected either intravenously, subcutaneously or intramuscularly; or two or three times that amount may be injected into the peritoneal cavity with a blunt needle.

The reason for using the mother's blood instead of that from some other donor, is that the two types of blood are more likely to be similar, and even should they be dissimilar, the difference is too little to cause clumping and may be given at once, whereas for transfusion of blood from a person other than the mother, typing would be absolutely necessary for safety and a laboratory for doing this might not be near and could not be fixed up without consuming valuable time.

Transfusion of blood is theoretically the ideal method of treatment. But the superior longitudinal sinus and the median basilic veins are the only readily accessible routes and the danger attending the opening of the former and the small lumen of the latter, especially when collapsed following hemorrhage practically bar these routes. For either operation on infants is considered difficult by those doing much surgery.

The one route for injecting the mother's blood intravenously with ease, is the umbilical vein. It can generally be used up until about the fourth day, and hemorrhages of the new-born rarely ever occur after the fifth day, usually between the third and fifth.

Lucas, of San Francisco, in his study of the physiology of the blood, has been able to show from experimental work on the blood or, perhaps better, a lack of equilibrium in the few days of life, a definite qualitative defect or, perhaps better, a lack of equilibrium in the prothrombin elements. The usual cases of hemorrhage of the new-born, and certainly those which respond to blood transfusions are those in which the prothrombin element is affected.

Just what is the underlying cause of this lack of balance in the prothrombin element in the new-born, has not yet been demonstrated.

## CARBONATE OF GUAIACOL IN LUNG AFFECTIONS

W. T. BAKER, M. D.

Louisville.

The general symptoms of acute lung and bronchial affections are so well known that I will not attempt to discuss them, preferring to give what I have found to be a very successful line of treatment in all these conditions which are comprised in a group of pneumopathies.

Calomel is begun at once and in doses to give results, that is, from a fraction of a grain to the infant up to ten grains to the adult. The whole amount is divided into several doses and given at intervals of half to one hour and followed with castor oil or some form of magnesia. Oil is preferable to the younger children and magnesia to the older and adults. After all it is more a matter of elimination than the agent used.

Carbonate of Guaiacol is also begun at once with a dose of fifteen grains to the adult and down to one grain to the infant. These doses are given at three hour intervals and kept up until results are obtained, which will be usually in 24 or 36 hours, but is continued if needed. If the cough is worrying the patient a small amount of codeine is added, and at times ipecac which tends to loosen the mucous by increasing the secretions.

Citrate of soda or potash in doses of 15 grains or less is also used and given at about three hour intervals. This I have found as effective as the high priced alkalizers.

The temperature is let alone unless it should get exceedingly high. It can usually be controlled by proper ventilation and the absence of heat from the room and an occasional rub of alcohol or vinegar and water or an enema. If necessary to give any fever reducing remedy, I have found aconite in doses according to age usually gives very good results.

The coal tar derivatives are left off entirely. It will often be found that the patient is not getting sufficient fluids and when these are given the temperature will drop. All liquid; water, lemonade, orange juice, grape juice or butter milk, should be given as liberally as possible.

The fruit juices in the early stages and broths made from meats or meat jellies later as the temperature drops. The predigested foods have been found very valuable in keeping up the nutrition of the patient.

For coughs in the younger children, I have found the simple mixture of equal parts of

glycerine, lemon juice and syrup very effective. This is very palatable and can have no bad effect even if given in large amounts. The same mixture often suffices in the larger children and adults.

If necessary I do not hesitate to give codeine in small doses, which can be combined with any of the many vehicles that are used in cases of coughs.

This general line of treatment has given me great satisfaction and a very high rate of recoveries.

The physician of course, will keep in mind the matter of heart stimulants if needed.

External applications give much comfort to the patient and I am convinced give results. Libradol, made by Lloyd, has been used with a great deal of satisfaction by me. It can be applied in a manner that is light and does not interfere with the respiration of the patient.

Mustard plasters have been used many years and also give good results.

External heat is very useful and the nurse should be instructed to keep the extremities warm at all times, even if the temperature does not seem to require it. By keeping the feet and legs warm by external heat, the circulation is kept up and heart is relieved.

As the temperature subsides and the patient's lungs begin to clear, syrup hydriotic acid acts well, also tonics of iron combinations or cod liver oil preparations are used.

As this treatment is about the average used, and with the exception of the guaiacol carbonate, I feel that the large per cent of recoveries, is due to the liberal and constant use of that drug.

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**Progress of Pulmonary Tuberculosis Detected in Apparently Healthy Persons**—Investigations on 1,688 patients with open tuberculosis convinced Braeuning that about 70 per cent of such patients die as the result of open tuberculosis. He also found that only about 15 per cent of the cases of open tuberculosis are recognized before they become open. Consequently the fate of the majority of patients with open tuberculosis is already sealed when the tuberculous process is discovered. This shows how necessary it is that tuberculosis be recognized earlier. But, since incipient tuberculosis cannot always be detected by percussion and auscultation, roentgen examination is necessary. The author realizes that it is not possible to keep the entire population under constant roentgen control, but he stresses the necessity of observation of those groups that are predisposed or exposed to tuberculous infection.



## WOMAN'S AUXILIARY FROM THE A. M. A. AUXILIARY

### The President's Message:

The reports of the chairmen of the various national committees and of the state presidents indicate unmistakably to the Auxiliary women everywhere that as doctors' wives we have a definite sphere of influence as members of lay women's organizations. As such we may form a strong bond between the medical profession and the lay public.

Because of this possibility we shall make every effort this year to strengthen our organization both in numbers and in quality of work done.

The greatest demand made upon us is for the right kind of source material for health programs, and for health program speakers.

We are attempting to supply this information through a selected packet of literature, assembled by the Bureau of Public Information of the American Medical Association; by leaflets on communicable diseases compiled from the best recent medical literature and approved by a member of our advisory committee appointed for that purpose; by the dissemination of leaflets on "Some Contributions of Modern Medicine to the World"; by announcement of the American Medical Association radio broadcast; and by using our best energies to promote the circulation of Hygeia.

We ask that every doctor's wife read the recommendations concerning Hygeia made to the Woman's Auxiliary by the House of Delegates of the American Medical Association. It is found on page 2116 of the June 20 issue of the Journal of the American Medical Association. Please see that your state and county medical societies also take notice of this recommendation of the House of Delegates.

Many Auxiliaries are doing outstanding constructive philanthropic work such as contributing to a medical benevolence fund, assisting in hospital auxiliary work and establishing medical student loan funds.

We believe that one of the best services we can render to the medical profession is to make our state and national conventions so attractive that great numbers of our women will be enticed to attend and will influence their husbands to come.

The recent meeting in Philadelphia showed that a convention can serve such a purpose. To this end we are already planning to make the convention in New Orleans the best yet if possible and we herewith invite all the doctors' wives to come and bring their husbands.

I hope your Press and Publicity Chairman will let me talk with you again. Always read her reports and those in the Bulletin of the American Medical Association. In the Bulletin are two pages edited this year, as last, by Mrs. Walter Jackson Freeman, our national President-elect. I commend those pages and these to you and ask your support to make our departments

co-operative, useful and successful.

MRS. A. B. McGLOTHLAN,  
St. Joseph, Missouri.

## PANORAMIC VIEW OF THE WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION IN FOUR ARTICLES

### 4. Western District

Mrs. James F. Percy

(Editors's note: Due to lack of space, the whole of Mrs. Percy's excellent article could not be published. This is merely a summary.)

The following status of Auxiliary work was found in Nebraska and the states west.

Active organizations: Arizona, California, Colorado, Nebraska, New Mexico, Oregon.

All of these states have been using the American Medical Association study envelopes, particularly the one on "Communicable Disease Control."

Legislative work was undertaken in California during the last year, also by Arizona, where assistance was given in the successful passage of the Basic Science Law.

Red Cross, Tuberculosis and other welfare work was accomplished in most of the states. In Nebraska, the definite organization of county relief work resulted in great saving to the County Commissioners. Public health nurses have been provided for public school work in various counties.

Benefits are held to secure funds to complete the files of scientific books, magazines and research work of the pathological laboratory connected with the Sharp Building Library at Lincoln.

In Idaho, there is some activity. Washington, Wyoming and Utah hold promise of organized activity soon.

## PERRY COUNTY MEETS

The regular monthly meeting of the Woman's Auxiliary to the Perry County Medical Society was held with Mrs. W. H. Hobbs at Glomawr. Miss Dorothy Collins read a paper on "Auxiliary Organization and Program"; Miss Edna Frank Snyder sang a solo and Dr. Fred Caudill made a talk on "Public Health."

For the study of the lesson in the A. M. A. Auxiliary Study Course on "Communicable Diseases," it was decided to hold an all day picnic at Hindman on August 6. Mrs. A.M. Gross, the President, will have charge of the transportation, Mrs. G. M. Adams and Mrs. R. L. Goad, the refreshments and Mrs. J. P. Boggs, the program. An invitation will be extended to the Letcher County Auxiliary.

Those attending the meeting were: Mrs. A. M. Gross, Mrs. S. M. Richie, Mrs. W. H. Hobbs, Mrs. J. C. Coldiron, Mrs. R. L. Collins, Mrs. J. P. Boggs, Mrs. G. M. Adams, Mrs. S. B. Snyder, Mrs. Ben Fitzpatrick, Mrs. R. L. Goad and Miss Dorothy Collins.

# Kentucky Medical Journal

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NEXT MEETING LOUISVILLE

## COUNTY SOCIETY REPORTS

**Jefferson:** The September program of the Jefferson County Medical Society will be as follows:

### September 21st

#### Symposium on Diabetes

1. Dietetic Principles, Frederick G. Speidel, M. D.

2. General Management, Armand E. Cohen, M. D.

3. Treatment of Coma, Arthur T. Hurst, M. D.

4. Surgical Problems, M. J. Henry, M. D.  
Discussion to be opened by Frank Strickler, M. D. and Hays Gailbreath, M. D.

J. D. ALLEN, President,

J. C. BELL, Secretary.

**Muhlenberg:** At a recent meeting of the Muhlenberg County Medical Society the following resolutions of respect were drawn up regarding Doctor Clarence Woodburn. Whereas one of our most faithful members met a tragic death, Therefore be it Resolved: That this society express its tenderest sympathy to his bereaved family and friends. Also that the community has lost a useful and progressive citizen. That a copy of these resolutions be mailed to the heart stricken family, one be mailed to the local papers and one to the State Medical Journal.

## DOCTOR CLARENCE WOODBURN

The life of one of West Kentucky's most active and useful citizens was snuffed out on May 24th, 1931, when Doctor Clarence Woodburn, Central City, Kentucky, was killed by his own automobile.

The circumstances of his death were especially sad, as it seems to us that he sacrificed his own life in a successful effort to save the life of his little grand child.

Doctor Woodburn was driving up Broad Street in Central City with his little grand child by his side. He stopped, in obedience to a signal, at the intersection of Second Street, killing his motor. When he attempted to start the car he found his starter was hung. With the assistance of bystanders he began rocking the car backward and forward, in order to loosen the starter, but failed to turn off the ignition switch. Realizing as the car started that the switch was on he grabbed the front bumper in an effort to stop it, but this he could not do, instead the car dragged him across the street into the curbing and crushed him to death. His unselfish efforts did save his grand child from serious injury or death, as his weight turned the car toward the pavement, slowed it down, and doubtless prevented it from running away at such speed as to wreck it. As it was, the car stopped after jumping the curbing and striking the front of the First National Bank. And the



grand child was left sitting in the car unhurt.

Doctor Clarence Woodburn (affectionately called "Doctor Clarence" by his many patients and friends, and for purposes of identification, also the Woodburns in Muhlenberg County are a family of physicians), son of Doctor Benjamin W. Woodburn and Cecile Smith (Crosby) Woodburn, was born in Bremen, Muhlenberg County, Kentucky, November 3rd, 1863.

He attended the local schools in his early childhood; graduated from West Kentucky College, South Carrollton, Kentucky, with a B. S. Degree in 1880; and received his M. D. Degree from the Louisville Medical College in 1887.

He married Miss Mattie Coffman of Muhlenberg County, Kentucky January 18th, 1887, and began the practice of his profession in that county, immediately after his graduation. He soon had a large and lucrative practice; was the leader of his town and community in all civic affairs; organized and built in Bremen one of the first telephone exchanges in the county, was president of the company, became sole owner of the business and remained in control of it until it was sold to the Cumberland Telephone and Telegraph Company.

He lived and worked in Bremen most of the time until about nineteen years ago, when he moved to Central City, Kentucky, where he spent the remainder of his life, except for about two years which he served in the Medical Corps in the World War. He entered the Officers' Training Camp, served at Fort Leavenworth, Kansas and at Camp Taylor near Louisville, Kentucky, resigning at the end of the war as a Major in the Medical Corps.

At Central City Doctor Woodburn enjoyed a large practice and held the respect of the entire citizenship.

His wife and four children, viz: Mrs. J. C. Batsel, Mrs. C. C. Donavan, C. C. Woodburn and Matilda Mary Woodburn, survive. He also left a sister, Mrs. Anna Whitmer, and a brother, Doctor J. C. Woodburn. All reside at Central City except Doctor J. C. Woodburn, who lives at Greenville, Kentucky.

Doctor Woodburn was a member of the Southern Medical Association, the Kentucky Medical Association and the Muhlenberg County Medical Association, having been President of the last named association for a number of terms.

**Grant:** The Grant County Medical Society met at the office of the Health Department of Grant County, at 7:30 P. M., Wednesday evening, August 19, 1931, with the following members present: Drs. A. D. Blaine, J. W. Abernathy, C. M. Eckler, N. H. Ellis, C. D. O'Hara, W. J. Zinn, and C. A. Eckler.

The report of the Secretary of last meeting was read and adopted as read. The report of the committee appointed to visit the Fiscal Court and to ask why our salary for pauper practice

for 1930 had not been paid. Upon the report of the committee, a motion was made and seconded to receive the report of the committee and to congratulate them for having obtained the salary before this meeting.

There being dissatisfaction among the members about the small pittance the Fiscal Court is allowing for pauper practice, there was immediately a committee appointed to formulate some plans for taking care of the pauper practice and to report at the next regular meeting in September and then to confer with the Fiscal Court at its regular meeting in September. The committee appointed was as follows, Drs. C. D. O'Hara, from Williamstown, Ky.; A. D. Blaine from Dry Ridge, Ky., and Harry F. Mann from Crittenden, Ky.

All members were urged to attend the Kentucky State Medical meeting, if possible, which is to be held at Lexington, Kentucky, September 7th to the 10th. This promises to be biggest meeting of its kind ever held in Kentucky.

There being no further business, we entered into the program. The topic for discussion was "Measles, Varieties, and Complications."

The first called upon was Dr. A. D. Blaine, who talked at length, the subject from all points, ably and well. Dr. C. D. O'Hara discussed at length about the different varieties of measles, going back to their starting point, of their history, explaining their Nomenclature and going into their complications and differential diagnosis from all viewpoints. He handled the subject in quite a masterly way.

Other discussions were made by Drs. C. M. Eckler, N. H. Ellis, J. W. Abernathy and C. A. Eckler. Questions were put forth and answers were discussed, making an unusually interesting meeting, each one feeling it was good for him to have been there.

The subject for next meeting was selected as "Scarlet Fever," and everything about it.

There being nothing further of interest, motion was made and seconded to adjourn and to meet the third Wednesday in September at 7:30 P. M.

C. A. ECKLER, Secretary.

**Jefferson:** The October program of the Jefferson County Medical Society will be as follows:

#### October 5th

##### Case Reports

Pertussis with Unusual Leucocytosis, W. W. Nicholson, M. D.

Embolism of Femoral Artery, E. S. Allen M. D.

##### Essay

Effect of Disease on Calcium and Magnesium Content in the Blood, James Winter, M. D.

Discussion to be opened by Frank Simon. M. D.

**October 19th****Case Report**

(Title to be supplied later), T. Cook Smith,  
M. D.

**Symposium—Intravascular Complications in  
Surgery**

1. Arterial Complications, J. G. Sherrill,  
M. D.

2. Venous Complications, W. I. Hume, M. D.

3. Pulmonary Complications, Louis Frank,  
M. D.

Discussion to be opened by A. J. Müller, M. D.  
and E. F. Horine, M. D.

J. D. ALLEN, President,  
J. C. BELL, Secretary.

**Bourbon:** The Bourbon County Medical Society met on Thursday evening, August 27th, 1931. The meeting was held in the County Court Room of the Court House in Paris.

Those present were Drs. J. A. Orr, J. C. Hart, L. Oberdorfer, William Kenney, C. G. Daugherty, Hopkins, M. J. Stern.

Dr. Kenney read a Journal article, entitled "Appendicitis in Children." This was discussed by all present.

Dr. Daugherty read a Journal article on "Treatment of Drug Addiction by Blister Serum Injection."

Meeting adjourned.

MILTON J. STERN, Secretary.

**Bullitt:** The Bullitt County Medical Society met in Shepherdsville, on August 26th with the following members being present, Dr. G. W. Kirk, Chairman, Dr. William Napper, Dr. George Hill, Dr. S. H. Ridgway.

Dr. Hill was elected delegate and Dr. Napper, alternate to the State Medical Society.

There was a free discussion of health work and the duty of the health officer. Members of health board, and of the doctors in the county. It was agreed that there must be a cooperation of the Health Officers and the doctors in the County to make the health work a success.

S. H. RIDGWAY, Secretary.

**Franklin:** The regular monthly meeting of the Franklin County Medical Society was held in the writing room of the Capital Hotel on Thursday, September 3rd.

Members present were: Drs. Budd, Roemele, Coleman, Travis, Coblin, Jackson, Patterson, Minish and Youmans. Visitors: Drs. Bradley, Maguire, Hollie and Leaser.

In the absence of the President, Dr. Minish officiated and called the meeting to order. Minutes of the last meeting were read and approved. Dr. Budd had charge of the program. The essayist for the meeting, Dr. Ernest Bradley, of Lexington, gave a most interesting lecture on "Serology" which was enjoyed by all and was freely discussed by most members

present.

The Society then adjourned to the Hotel Dining Room for lunch.

C. E. YOUMANS, Secretary.

**Third District:** The last meeting of the Third District Medical Society for the year met with the Warren County Society at the Helm Hotel, Bowling Green, Wednesday, August, 26th, with Dr. S. S. McReynolds in the chair.

Dr. C. C. Turner, Glasgow, read a paper on "Functional Indigestion or Nervous Dyspepsia." This was discussed by Drs. T. H. Turner, McConnell, Howard, Blackburn, McReynolds and Graves.

After a most delightful luncheon Dr. S. C. Cowan, Nashville, read a paper on "The Results of Prenatal Care" and Dr. W. T. McConnell, Louisville, read one on "The Toxemias of Pregnancy." These were discussed by Drs. Rutherford, Gary, Blackburn and McReynolds.

JNO. H. BLACKBURN, Secretary.

**Harlan:** The regular June meeting of the Harlan County Medical Society was held at Lynch, Saturday, June 27th, at noon (12) Central Standard Time, at the Lynch Hotel. At this time we were the guests of the Staff of the Lynch Hospital and President Petty. Dr. Woodford B. Troutman, of Louisville, read a paper, on "Cardiology and Its Relation to General Practice."

Those present: W. B. Troutman, P. E. Hale, H. S. Hodges, P. U. Adkins, P. C. Brooks, J. C. Nash, O. F. Alford, W. P. Cawood, L. O. Smith, R. P. Ball, R. J. Buckman, Harry Lindin, W. C. Bailey, L. E. Payton, M. M. Riddell, C. R. Petty, Mr. Mose Howard.

M. M. RIDDELL, Secretary.

## BOOK REVIEWS

**HEALTH ON THE FARM AND IN THE VILLAGE:** C. E. A. Winslow, Dr. P. H. MacMillan Co., New York, Publishers. Price \$4.00.

In every country, statesmen are realizing that the major problem of public health service is the extension of the facilities of modern medical science to the rural areas. Here are revealed the experiences of a typical rural county of the northeastern United States in developing protection for the health of a rural population which the author believes stands far above the ordinarily afforded, and is comparable perhaps to only a dozen really adequate rural health services in the country.

Health, social workers and educators who would acquaint themselves with recent developments in the field of rural health administration and practice will find that Professor Winslow's book opens up new vistas into what is yet a comparatively virgin field of public health.





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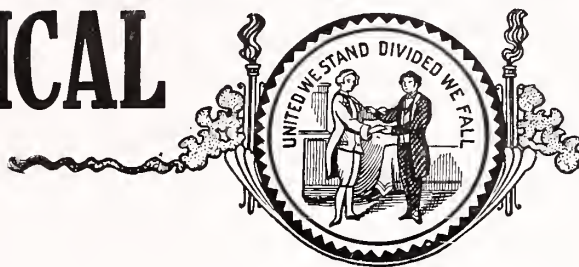
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# KENTUCKY MEDICAL JOURNAL



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NOVEMBER, 1931

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And now a **NEW EDITION**

## Pelouze on Gonorrhea MALE AND FEMALE

The first edition of this book went through five large printings. Now comes a *new edition* (the second, enlarged, improved, brought up to date, new chapters added, new sections, notably that on *Gonorrhea in the Female*).

The entire book has been reset because of these many additions, including local medication of the urethra, treatment of acute anterior urethritis, gonorrheal arthritis, treatment of periurethritis, phimosis, paraphimosis, balanoposthitis, lymphangitis, phlebitis, lymphadenitis, acute folliculitis, follicular abscess, parafrænal abscess, paraurethral sinusitis, gonorrheal ophthalmia. A number of new illustrations, some in colors, have also been added.

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# KENTUCKY MEDICAL JOURNAL

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## EDITORIALS

### PUBLIC HEALTH EDUCATION

A most encouraging sign of the times is the rapidly spreading recognition of the importance of education in matters pertaining to public health. Not only is interest everywhere steadily growing in this subject, so indissolubly connected with public welfare, but efforts of constantly enlarging proportions are making to translate this interest into effective action. The medical profession, governmental agencies, national, state and local; unofficial health organizations, endowed foundations, the newspapers, big insurance companies and large industrial corporations, railroads, women's clubs, luncheon clubs, civic associations and individuals are all contributing, in constantly expanding degree, to arousing and developing among the people that health consciousness which is manifestly essential to proper protection and promotion of the public health.

One has only to consider public health education to realize the magnitude of the subject. The question is so complex and has so many varied, though inter-related, aspects that its scope and potentialities are almost limitless. Dr. Allan J. McLaughlin, Medical Director, United States Public Health Service, likens public health education to a structure which "depends upon research as a foundation and upon demonstration as a means of building the superstructure." The comparison is peculiarly apt.

Unfortunately, erection of the superstructure has not kept full pace with the building of the foundation. Two reasons for this, probably the two chief reasons, are to be found in the facts that larger funds have been available for research, than for demonstration and that the former has been carried on more intelligently and more systematically than the latter. For two or three decades past the Federal Government has been active in research work and so, too, have some of the State Governments, in greater or less degree. At the same time, the Rockefeller Foundation and other heavily endowed organizations of similar character, some of the big life insurance companies and not a few of the larger universities, all with ample

financial backing, have been conducting varied and extensive investigations on their own initiatives. The composite result is a sum total of health knowledge of inestimable potential value.

When it comes to demonstration—the disseminating of this knowledge among the people and teaching them how properly to apply it—the case is largely different. It is true that the Federal Government, in co-operation with the States, combines in higher degree the educational with its research work. So, too, do the endowed foundations, the larger universities and the big life insurance companies. All of these are contributing greatly to public health education, as are also the unofficial health organizations, though the latter, for the most part, devote their efforts to specific phases of the public health problem. Most important of all, of course, is the work of the State Departments of Health, operating through full time county health units, but these, in most cases, are more or less hampered and handicapped by lack of adequate funds for the proper conduct and expansion of their activities.

That better results have not been accomplished, with all these agencies, official and unofficial, in the field and each of them doing public health education work of great value, is, no doubt, due, in some measure, to absence of co-ordination of efforts. There has been too much lost motion, too much duplication of activity and expenditure. What is needed is some well-formulated official program, embracing all the agencies, governmental and non-governmental, engaged in public health education work and so correlating these activities as shall best subserve the common purpose had in view. This program should begin with the child in the prenatal period, by educating the mother, and continue through infancy, the preschool age and up through all the primary and grammar grades and high school. Especially should it be applied to normal schools and teachers' colleges, to the end that they who seek to become teachers of the young may themselves be properly educated in matters pertaining to personal hygiene and public health.

It is hazarding nothing to predict that if

we can once get in Kentucky one generation of young men and women who have all acquired adequate health knowledge and proper health habits and an efficient full time county health unit in every county in the State, the all-important problem of public health in this Commonwealth will have been placed on the sure road to solution. Little more is required to insure a consummation so devoutly to be wished nothing less will suffice.

### THE SOUTHERN MEDICAL ASSOCIATION

New Orleans, the Crescent City, is again to be host to the Southern Medical Association. In the new Municipal Auditorium, said to be the handsomest in the South, will be housed all the activities of the meeting, not only the general sessions and the meetings of the several sections, but also the scientific and technical exhibits and the main social functions.

Realizing the necessity of conserving time, these meetings will occupy only three days, Wednesday, Thursday and Friday, November 18-20, inclusive. As they are all to be held under one roof, physicians and others may go quickly and readily from one program activity to another.

The President's reception and dance, the outstanding social function of the meeting, will be held on Wednesday evening. Thursday evening will be given over to Alumni reunions.

The American Society of Tropical Medicine, the National Malaria Committee, the Southern Association of Anesthetists and the Southern Association of Medical Women, of which Dr. L. H. South, Louisville, Kentucky, is the Secretary, will meet conjointly this year.

A trip to the Leper Colony at Carrsville, the only one in the United States, may be arranged by writing to Dr. E. O. Denny, Carrsville, Louisiana, only a short distance from New Orleans.

In the last 15 years there have been two cases of leprosy in native Louisvillians, both of them from the wealthy class—not from our slums.

There are beautiful golf links available for both ladies and gentlemen.

Special entertainment, under the direction of the Women's Auxiliary, will be provided for the visiting ladies. The antique shops are already busy boring holes and making antiques, so that the charm of Royal Street may not lose its lure: for here are to be found the largest collections of real old furniture in America.

The L. & N. Railroad offers this year an

exceptionally low round trip rate to New Orleans. Its announcement follows:

"We can offer you this year an exceptionally low round-trip rate to New Orleans, which will be on sale daily and will have a limit of fourteen days in addition to the date of sale, the fare being \$37.65. This ticket will permit stopovers at all points in either direction and can be used leaving Louisville on our train "The Pan-American" or the "New Orleans Limited," using our main line via Nashville, Birmingham, Montgomery, Mobile, along the beautiful Gulf Coast to New Orleans. On your return you have the optional route privilege of traveling via the same route used on your going trip, or via Montgomery, Atlanta, Chattanooga, and Nashville, or via Atlanta and Knoxville.

"The Pullman cost will be: lower berth \$8.25, upper \$6.60, single occupancy section \$11.55, compartment \$23.25, drawing room \$30.00

"We can offer you the following excellent schedules:

	"Pan-American"	"New Orleans, Ltd."
Lv. Louisville.....	12:47 P. M.	9:57 P. M.
Ar. New Orleans	9:05 A. M.	8:30 P. M.
Lv. New Orleans	8:20 P. M.	9:00 A. M.
Ar. Louisville.....	4:58 P. M.	7:10 A. M.

Your particular attention to the famous all-Pullman train "The Pan-American," which offers club car accommodations, shower, valet, unexcelled dining car service, parlor-observation car with radio. The "New Orleans Limited" offers through all-steel Pullman sleepers and the usual excellent L. & N. dining car service. For further information write to E. G. Jones, City Passenger Agent, Louisville, Kentucky."

A tour to Panama and the Canal Zone with a call at Havana has been arranged, to follow the convention.

The S. S. Heredia, of the Great White Fleet (United Fruit Company), will be used, it is one of the largest and nicest of the ships out of New Orleans to the tropics, and is especially suited for a cruise such as has been arranged. This will be an all-expense tour, with ample sight-seeing and entertainment in Havana, and the best of entertainment and accommodations in Panama. The ship will sail at noon on Saturday, November 21, the day following the close of the New Orleans meeting, and arrive back at New Orleans on the return trip about noon on Friday, December 4. There will be a half day in Havana and three days and two nights in Panama and on the Canal Zone. Write to the Southern Medical Association for further particulars.



## COUNTY SOCIETY MEETINGS

The time is approaching when many county societies will be planning for their annual meetings and the election of officers for the ensuing year. As the success of their work for the next 12 months will depend largely upon the leaders chosen, great care should be exercised in their selection. Most important of all of the officers of a county society is the secretary, as upon his ability and energy rests the foundation of the medical organization. If he is interested, alert and active, you will have a prosperous society. If he is indolent and indifferent, the society will languish. Many members of the Jefferson County Medical Society have offered to prepare papers for your meetings and the office of the JOURNAL will print the programs, mimeograph the letters of the secretary, supply speakers and, in every way, assist in promoting the success of the meetings and the general welfare of the county organizations.

## OUR HEALTH MAGAZINE

The organized medical profession has a publication in Hygeia that presents the viewpoint of scientific medical men to the public in simple non-technical language. It is the only scientific weapon the doctor has to combat superstition and that militantly opposes quackery, charlatanism and cultism of all kinds. It discourages self medication and urges early medical treatment, it leads to a better understanding between the physician and patient.

If Hygeia is on your office table each month you have a silent partner who is interesting your waiting patient in stories about mail order quacks, more McCoy misinformation, all the new medical discoveries, and every phase of health and happiness. This partner asks only the share of your income, \$3.00 a year, and promises to work during your absence, vacations and busy hours. For \$4.50 you can bind this partnership until January 1, 1934, and in addition can secure a Primer on Fractures. Write to the JOURNAL for more details.

**Pathogenesis of Epilepsy**—Munch-Peterson made tests with hyperventilation (Forester) in fifty patients with organic diseases of the central nervous system. His failure to produce the slightest epileptic symptom supports the view that epilepsy originates on the basis of a constitutional factor. Some of the frequent phenomena seen during hyperventilation are ascribed to elective irritation of the affected nervous tissue.

## PRESIDENT'S ADDRESS

### A PARTIAL REVIEW OF A HALF CENTURY OF THE ADVANCEMENT AND CONQUESTS OF OUR PROFESSION\*

J. T. REDDICK, M. D.

Paducah

Realizing that the custom and duty of this exalted position made it incumbent upon me to make some kind of an address on this occasion, I began to "cast about" for a subject to speak upon and having decided on a theme, a discussion has been added to, from time to time, and now, since it is finished I feel inclined to want to offer some apologies for a few of its paragraphs.

A reason for a mention of a member of my own family, is, that I might compliment her and in connection therewith acknowledge my gratitude to the good ladies of the Woman's Auxiliary of this state for the honors they have conferred upon her.

I also find that I could not discuss the subject without a frequent mention of the personal pronoun.

Perhaps my address may strike a responsive and sympathetic chord in the hearts and minds of the elderly physicians of this audience, especially those who have practiced in the country and small towns, and it may suffice to indicate to the younger physicians the contrast existing between the lack of facilities for acquiring a medical education and intelligently practicing it, in the long years ago, and the high class medical teaching, hospital advantages, office equipment etc., of the present day.

As I take a retrospective view of the years of my professional life I am reminded of a few events which I might characterize as of importance to me.

First, fifty-one years ago last February, in a Southern city there was placed in my hands a piece of parchment which gave me, a mere boy, authority to practice the healing art. Next, about twenty months later I was met at the matrimonial altar by a beautiful girl who has since journeyed with me down life's highway. She is here tonight; she has presided over my household; she is the mother of my children; she has been an inspiration and a helpmate to me in every sense. She was honored by the good ladies of the Woman's Auxiliary of the Kentucky State Medical Association by being exalted to the presidency of their organization 1928-29, and may

\*Delivered before the Kentucky State Medical Association Lexington, September 7-10, 1931.

I now express my sincere appreciation of that distinguished honor.

Then, a year ago at Bowling Green came the crowning event, the most appreciated honor which the medical profession of this state might confer upon me, that of President-Elect of this association, and then today in complete fulfillment of this honor the association gavel was placed in my hand, authorizing me to preside over this great body of Kentucky physicians, which I know compares favorably with a like number of physicians in any state within the bounds of the American Medical Association.

It is with feeling of deepest gratitude and most sincere appreciation that I occupy a position tonight, at one time in their lives held by some of the most eminent, capable, reputable and representative members of the medical profession in this great state, a position most enviable, a rank far beyond my humble merits, and which I shall ever regard as the highest honor that could be conferred upon me by my fellow physicians.

In addresses of this character, custom has established a rule to select some one subject to which attention may be specially directed, hence I have thought fit on this occasion to invite your attention as briefly as possible to "A Partial Review of a Half Century of the Advancement and Conquests of Our Profession." These observations and gleanings from medical history are such as have come into my own life in the five decades of continuous and laborious bedside practice, and I know you will pardon a frequent repetition of the personal pronoun.

In the progress of man no department has made greater strides than that of medicine and surgery. In its earliest days advancement was necessarily slow. Between the epoch-making discoveries of the circulation of the blood by Harvey, of smallpox vaccination by Jenner, the life and health saving operations of Dr. Ephriam McDowell and Dr. J. Marion Sims and many other outstanding events, hundreds of years elapsed, many errors had to be corrected, superstition overcome and scientific research instituted. But time rolled on and the knowledge of the healing art increased, progress became faster and faster, and now the present rate of progress is unparalleled in history.

Now, the discoveries in medicine and the improvements in surgery of five years ago are old today, and it behooves us to keep in touch with the latest and best of medical literature, and the voices of the keen minds of our leaders in medical society work.

Our profession is rich in history, rich in the great lives that have illustrated and adorned it, rich in deeds of benevolence, rich

in the splendid achievements of the past and rich in the promises of the future. The science of disease and the art of healing are founded in necessity, are dependent on the study of man's physical and moral nature in health and disease. It purposes to bless, it seeks only to do good, it inflicts no wounds, it produces no sorrow. Its ambition is not to slay, but to make alive. Its kindly offices are received with confidence and remembered with gratitude. It rests upon observation and reflection. It is essentially progressive.

In the brief time allotted me for this address I can refer only to a few of the more important discoveries and improvements in connection with our profession. Perhaps there has been more progress in our profession in the past half a century than in two thousand years before.

There are many tragedies in the life of a physician; on the other hand, the confidence, the esteem, the loyalty and the love shown by many patients and some times by entire families compensate for the tragedies and the periods of depression which come to all of us.

When I was permitted to enter the medical profession more than half a century ago there were no electric lights, no electric cars, no telephones, no X-ray apparatus, no automobiles, no radios, no airships, no antitoxines of any kind, no vaccines except smallpox vaccine, no serum of any kind, no intravenous therapy, no moving pictures, bacteriology was in its infancy, the microscope had not reached its present state of perfection and use, the germ theory of disease was hardly dreamed of, surgery was crude as compared with the beautiful aseptic and almost perfect technique of the present day.

Having qualified myself (at least legally) to practice my profession I rode horseback one hundred miles into Kentucky and began a country practice, which I continued for ten years. I have always belonged to that class (now vanishing) known as a family physician. While in the country I did a horseback, "saddlebag," practice, preparing and dosing my medicine at the bedside. No other doctor near, a large territory, no telephones to call another doctor in emergencies, thrown on my own resources, no roads worth mentioning, mud knee deep to a horse in the winter time, sometimes had to swim swollen streams, but it was a great experience and educational. A long step to present conditions, namely, prescription practice, good nurses, standard, well-equipped hospitals, scientific, helpful, friendly consulting physicians, brilliantly lighted streets, good roads, closed automobiles, lighted and started at the



touch of a button and good medical societies.

#### LISTER

At the very beginning of my career as a physician, the studies and discoveries of Lister were promulgated, which was the beginning of a new era in surgery and opened a wide field in the antiseptic and aseptic treatment of wounds and the performance of surgical operations. The exclusion of disease-producing germs from wounds and surgical fields as taught by Lister has forever banished the former risk from surgical procedures, and convertment of medicine almost into a science of definite laws. All portions of the human frame, including the brain the very citadel of human life, heretofore deemed sacred from the touch of man, are now invaded and treated by our surgeons without fear or hesitancy under the perfect aseptic technique of the present day.

#### APPENDICITIS

Fifty years ago, appendicitis was unknown under the name appendicitis. It is true that appendiceal abscesses were opened and drained, the offending gangrenous appendix being left in the wound. The removal of the appendix in connection with the drainage of the abscess was first done in this country in May, 1886, at Roosevelt hospital by Dr. R. J. Hall. The operation of appendectomy was undertaken in 1887 when Dr Thomas G. Morton, of Philadelphia, deliberately planned and executed its removal. Many thousands of lives have been saved since that time from this one operation.

#### GALL BLADDER DISEASES

The first operation on the gall bladder was done about fifty years ago, but the operation was not perfected until many years thereafter.

#### THYROIDECTOMY

The successful surgical treatment of the thyroid gland is of comparatively recent origin and is one of the conquests of our profession. In fact, the splendid high-class brain, thyroid, gall bladder, gastric, abdominal and pelvic surgery of the present time is of modern design and perfection.

#### TUBERCULOSIS

In 1882, the third year of my practice through the discovery of Koch, the real cause of tuberculosis was unveiled, which was one of the most important and far reaching events in modern medicine and one of the early manifestations of the study of bacteriology. It gave us a new conception of a disease and a study of preventive measures and methods of treatment which has been far reaching in its results and a continuing les-

sening of mortality from this insidious foe to humanity.

#### MALARIA

The mosquito or parasitic cause of malaria was discovered in 1880 by Laveran, a Parisian, who entered the military service and was assigned to Algeria, where his brilliant discovery was made in November, 1880, and announced to the Paris Academy of Medicine. But it was many years later, 1895-98, after toil and discouragement that Major Roland Reed proved conclusively that certain species of mosquito are concerned in the dissemination of malaria. The debt owed to him by mankind was acknowledged by the gift of a Nobel prize. A knowledge of the cause of malaria, the eradication of the malaria mosquito through drainage of swamp lands which were uninhabitable have made many places pleasant in which to live and reclaimed large parts of the earth's surface.

#### TYPHOID FEVER

The bacterium which is the specific cause of typhoid fever was discovered by Eberth, whose researches were later confirmed by the careful investigations of Gaffky several years after I began the practice of medicine. As a result of these investigations and the perfection of a means of immunization or vaccination against the disease, which is of recent discovery, thousands of lives are being saved. The toll of human life as late as the Spanish-American war in 1898 was great. In the American strength of 108,000 troops there were 20,738 cases of typhoid and 1,580 deaths. In the war with Mexico a few years ago in Camp San Antonio, Tex., with 12,800 troops there were two cases of typhoid and no fatalities. In the World War, with the millions of soldiers, typhoid was negligible.

#### DIPHTHERIA

I had been a physician three years before Klebs discovered the bacillus of diphtheria and a year later Loeffler was the first to obtain it in pure culture and to demonstrate its pathogenic action in the lower animals. The discovery of the exciting cause of diphtheria was followed ten years later by the discovery and introduction of a specific treatment for the disease. Von Behring's serum therapy, received at first with skepticism, the use of diphtheria antitoxin conquered the world. Prior to the use of diphtheria antitoxin the mortality from the disease was about fifty per cent, now perhaps not more than five per cent. In pre-antitoxin days diphtheria occasionally prevailed in epidemics in certain localities in a malignant form with every possible complication and sequella. To see a child die of diphtheria

as I have on several occasions in pre-antitoxin days, as perhaps others in this audience have, is a heart rending scene and was one of the tragedies in the life of a physician, especially the laryngeal form of the disease, formerly known as membranous croup. Could you stand at the bedside of a tender babe, too young to speak in its own behalf, see it as the diphtheria gains in the death grapple, hear its choking gasps, behold its protruding tongue, its livid face and its distended eyeballs looking at you in a last agonizing appeal, the little patient vainly seeking for relief by change of position, conscious almost to the last, and yet refuse to administer the antitoxin that would save its life, as would one of the so-called "religious cults" have us do, which says there is no pain, no death, no sin, that these are errors of mortal mind. Perish the thought!

#### SYPHILIS

In 1905 Schaudin and Hoffman discovered the *Spirocheta-Pallida* the specific cause of luetic disease, and ten years later the discovery of salvarsan by Ehrlich marked an epoch in the treatment of this too common and formidable disease.

#### RABIES

In the United States in 1908 there were 111 deaths in human beings from rabies reported from thirty states. Now, this disease which was extremely fatal is most successfully treated or prevented by the Pasteur treatment. In 14,000 persons inoculated in eight years, only seventy died of the disease, these fatal cases being chiefly persons who came for treatment months after the bite was received. The poison of rabies, formerly consigning its victims to sure and torturing death, now, under the magic touch of Pasteur is rendered as harmless as the sting of a bee. Had it not been for the Pasteur treatment I might not have been here tonight. thanks to our excellent state laboratory and our efficient Secretary of the State Board of Health.

#### ANTIVENIN

Antivenin is a name given to an antidote for snake bite and is a discovery of comparatively recent date. In years past many deaths have been produced in the southwestern part of the United States especially, also in India and South America. The use of antivenin in Brazil, where, two decades ago the number of persons dying from snake bites every year was estimated to be about five thousand has materially reduced the mortality. With the use of antivenin science says to the poisonous reptile, I will extract your sting and neutralize your poison. I will shiver

your lance with the hypodermic needle and from the syringe place an antidote which will render harmless and inert your most malignant venom.

We might mention another snake bite remedy which has been in use for a long time. It is indigenous to Kentucky, and especially to this beautiful blue grass section of Kentucky where, it is said, the water is purer and corn and rye—elements which enter into its manufacture—better than anywhere else. This medicinal agent has its disadvantages in that it is said to be sometimes cumulative in its effect and is also more or less habit forming. When properly compounded, that is, with a sufficient quantity of aqua pura, saccharinus alba, cracked ice and garnished with the crushed, fresh leaves of *menthapiperita*, which is also indigenous to Kentucky, and when the patient can hear the tinkle of the ice and get the aroma of the *menthapiperita* this concoction is said to be a very palatable dose. I have never been bitten by a venomous reptile.

#### INSULIN

One of the outstanding events in recent years in medicine was the discovery of insulin the use of which has prolonged and made comfortable the lives of a great number of people. Extension of the term of life of the diabetic resulting from the better understanding of the disease and particularly from the use of insulin has, according to Joslyn of Boston, one of the diabetic experts of this country, increased from 44 to 60 years,—sixteen years, this would mean 160,000 years added to the lives of ten thousand patients. Five years ago Joslin estimated the number of diabetics in the United States at more than half a million.

#### OBSTETRICS

When I was being taught obstetrics, anesthesia in midwifery was scarcely mentioned and seldom used and it was many years after I came into the practice that it was anything like being universally used. I believe that in this trying ordeal through which our mothers must pass that we are remiss in our duty if we do not give them every particle of relief we can. With anesthesia she can go to the parturient chamber of travail with a benign smile upon her face and amid what once had been terrors the patient shall find delightful repose and smile from visitations of pleasing dreams while the piercing cry of anguish is changed to the gentle murmur of painless rest.

Another one of the tragedies in the life of the physician which is now in a large measure averted, was the frequency of puerperal convulsions, a condition which tried the



souls of those who had to witness this terrible ordeal. What physician can ever forget the scene presented in a case of this kind? the twitching of the muscles of the face, the convulsive movements of all the muscles of the body, the livid and cyanosed face, the complete unconsciousness, stertorous breathing, sometimes the temporary arrest of respiration, the violent grinding of the teeth, etc. All this can now be prevented to a very great extent if we would but insist upon the prenatal care of our expectant mothers. Follow if you please, the advice and propaganda of our efficient State Board of Health, brought to us by the written and spoken word of those to whom this important duty is relegated.

#### YELLOW FEVER

In this far off day since the control of yellow fever in this country, we can hardly realize the periodical ravages of this disease in our Southland. At the very time I left the plow handles and harvest fields of my father's farm, wearing the clothes my mother made for me, and entered a medical college, fifty-three years ago, a violent epidemic of yellow fever was prevailing in Memphis Tennessee, and Nashville was filled with refugees. It is still fresh in my mind. 460 patients died in the hospitals of Memphis in that epidemic, forty-two of them physicians. Many of these physicians went from other places. They stood calmly and firmly at their posts. Life to them was sweet; to some of them it was morning, and the day full of hope and promise had but dawned. It was theirs to do the work which the clarion voice of duty commanded. In dark huts and loathsome surroundings they obeyed the call, asking and expecting no reward save that which an approving conscience gives.

Listen to a description of that yellow fever epidemic in Memphis more than half a century ago and remember the work a committee of doctors did to prove the source of the infection, which is one of the most outstanding events of all the ages in disease prevention and has saved the lives of thousands.

"Daily hundreds fell a sacrifice to the terrible epidemic. The city was become a mighty graveyard, two-thirds of the population had deserted the place, and only the poor, the aged and the sick remained behind, a sure prey for the insidious enemy. The houses were closed; little lamps burned in front of many,—a sign that death here had entered. Often several lay dead in a single house; from the windows hung black crepe. The stores were shut up for the owners were gone away or dead. Fearful evil. In the briefest space it struck down and swept away even the most

vigorous victim. A slight indisposition, then an hour of fever, then the hideous delirium, then the Yellow Death. On the street corners and in the squares, lay sick men, suddenly overcome by disease; even corpses distorted and rigid. Food failed, meat spoiled in the foetid and pestiferous air, and turned black. Fearful clamors issued from many houses. Then, after a season, they ceased and all is still. Noble, self-sacrificing men come with the coffin, nail it up and hurry it away to the graveyard. In the night, stillness reigns; only the physicians and hearses hurry through the streets, and out of the distance, at intervals, comes the muffled thunder of the railway trains which, with the speed of the winds as if haunted by furies, flies by the pest ridden city without halting."

This is more or less fresh in my mind though I was but a boy beginning the study of the healing art to which I have always been devoted.

It was twenty years later when Major Walter Reed, an army surgeon, headed a commission composed of Drs. Carroll, Agremonte and Lazear, all army surgeons, to investigate the cause of yellow fever. These heroic physicians assumed a thrilling and dangerous position and gave to the world a full knowledge of the way in which yellow fever is communicated, with the loss of one of their fellows, Dr. Lazier, a victim of duty well performed. Dr. Agremonte died the 17th of last month in New Orleans at the age of 63.

The modern laboratory, the X-ray as an apparatus of great diagnostic and therapeutic value to the physician and surgeon, the cystoscope for the urologist, the electrocardiograph for the cardiologist, the sphygmomanometer for estimating blood pressure, are all of inestimable value for scientific and accurate treatment of disease and belong to modern medicine. And now, in conclusion, ladies and gentlemen, what a remarkable improvement has taken place in the last half century. These rich and estimable treasures are the creations of those who have preceded us and many who are now with us devoting their intellectual faculties to the perfection of knowledge concerning the prevention and cure of human ills. As we think gratefully of the lives and work of these men today, we will wish to work and plan for the future.

So rapid have been the changes in the science and art of medicine that one has to be alert all the time to keep up with it; yet, we are perhaps at the very dawn of its accomplishments. The servants of medicine have the challenge always before them of a direct objective, near for some, more remote for others, but always in sight—that of lessening pain, and of bringing to their full

development, the mind, the body and estate of mankind.

My heart goes out to the old men of our profession. I love to study their characters, to catch the inspiration of their lives and feel the thrill of their influence. They leave imperishable names, and when they have turned their faces to the Golden West and quit this mundane sphere, I am reminded of the poet's description of the Christian's departure from earth—this beautiful poem of William Cullen Bryant:

'A cloud lay cradled near the setting sun  
A gleam of crimson tinged its braided snow;  
Long had I watched the glory moving on,  
O'er the still radiance of the lake below.  
Tranquil its spirit seemed and floated slow  
Even in its motion there was rest,  
Whilst every breath of eve which chanced  
to blow

Wafted the traveler to the beauteous West.  
Emblem, me thought, of the departed soul  
To whose bright robe the gleam of bliss is  
given;

And, by the breath of mercy, bade to roll  
Right onward to the gates of Heaven."

#### THE ORGANIZATION OF THE MEDICAL PROFESSION\*

E. STARR JUDD, M. D.  
Rochester, Minn.

The remarkable achievements of some of the pioneer medical men of Kentucky stand out not only for what they accomplished in the advancement of the art and science of medicine, but for their accomplishments in organizing members of the medical profession into a workable, democratic body.

When one thinks of the early days in medicine in this state he naturally first thinks of Ephriam McDowell, who has been established as the first ovariectomist and the founder of abdominal surgery. His ability as a clinician and surgeon of those days reflects great credit on all of you. I do not believe any of us at the present time can realize the courage that was required to proceed with this first abdominal operation. Great credit is due to the memory of Ephriam McDowell, but just as great credit is due to the memory of Jane Todd Crawford, the patient. The confidence and courage of this patient more than deserves the memorial which the Woman's Auxiliary is establishing for her.

It is said that the name and fame of McDowell were rescued from obscurity by Samuel D. Gross. Gross was for a number of years

Professor of Surgery at the University of Louisville, and then was called to Philadelphia to take the chair of surgery at Jefferson Medical College. Gross was important in the organization of medicine. He accomplished much in organizing the profession in the states in which he lived and also assisted much in the organization of the American Medical Association. One of his chief accomplishments was the organization of the American Surgical Association. He is known as the father of this great body. The organization of the American Surgical Association came about when Gross, knowing that the surgical section of the American Medical Association had been definitely established and at a time when he believed there was a place for a special surgical association. The American Surgical Association moved forward successfully from the first and has developed into one of our most important medical organizations. Gross realized the need of surgical societies for mutual instruction and interchange of opinion, and he became the founder of the Philadelphia Academy of Surgery, and of the Pathological Society of Philadelphia. He was the first to advocate abdominal section in rupture of the bladder, the use of adhesive plaster extension in fractures of the leg, amputation in senile gangrene, and suture of divided tendons. Gross was so well thought of by the members of the American Surgical Association that certain members of the society wished to make him president for life.

When we speak of organized medicine we really refer to the American Medical Association and its constituents. Everyone who has a degree in medicine should have membership in this national association. No matter whether one is working in the practice of medicine or surgery, public health, preventive medicine, or any other branch of the profession, his membership in the American Medical Association is the one that entitles him to recognition. Without affiliation in this association he cannot obtain membership in other organizations. His membership gives him a voice in the activities of the profession and enables him to establish contacts that he could not otherwise obtain.

The origin of the American Medical Association can be traced to a national convention of delegates from medical societies and colleges called by the Medical Society of the State of New York. This meeting was called for the purpose of raising the standards of medical education. The convention was held at New York University, May 5, 1846.

Exactly one year later, May 5, 1847, 250 delegates met in Philadelphia. This meeting resolved itself into the first session of the

\*Read before the Kentucky State Medical Association, September 9, 1931.



American Medical Association. All through the historical articles, repeated mention is made of raising the standards of medical education. A code of ethics was established; a constitution was adopted which encouraged the formation of state and county societies. The person who deserves more credit than any other for the organization of the American Medical Association was Nathan Smith Davis. For more than sixty years he worked for the highest ideals in medical education, organization and journalism.

For many years after the American Medical Association was organized, there was much discussion as to who was entitled to membership in it. The original intention was to limit representation to state societies whenever such existed, and local societies could be represented only when there was no state organization. Medical colleges, hospitals, asylums, and so forth, had representatives in the original organization.

Nathaniel Chapman was elected first president of the American Medical Association; although he had not been active in its organization he was nevertheless one of the oldest and most eminent teachers in the union and stood at the head of the profession.

At the meeting in 1848, Oliver Wendell Holmes urged American physicians to publish their material in this country instead of writing for European journals.

In 1850, for the first time, the American Medical Association held its meeting in a western city, Cincinnati. It is said that this meeting gave new and strong impulse to the work of social organizations throughout the profession in the Western states. All previous regulations concerning medical education were reaffirmed.

The social organization was still more active at the meeting in 1851, in Charleston, S. C. Prodigal entertainment prevailed at this meeting.

At the meeting in 1863, the committee on medical education reported that a reproach and distrust of the medical profession was felt everywhere, and that the chief cause of weakness in the medical profession was lack of preliminary education.

The attendance at the meetings was increasing and the work was becoming more complicated, so that questions that arose often could not be decided in open meeting. Therefore, in 1873, a judicial council of twenty-one members was created to take charge of and decide all questions of ethical or judicial character that might arise.

At the meeting in 1874, a plan of organization was discussed, but it seemed impossible to get properly accredited delegates to take the time to do the work and make the decisions, and it was not until eight years later,

at the meeting in St. Paul, that effective steps were taken toward this end.

Up to 1882 scientific papers had been published in the annual transactions and were essentially buried there. At the meeting held in St. Paul it was estimated that the publication of a journal would require \$15,000. It was decided to open the membership to all members of state and county medical societies, to increase the dues to five dollars annually, and to establish a weekly journal, with a charter and a board of nine trustees. In July, 1883, the first number of the *Journal of the American Medical Association* appeared. In 1897 the association was incorporated in the state of Illinois.

The organization was becoming so large and unwieldy that many difficulties arose at each meeting. There seemed to be no way of controlling so huge a membership. Many attempts were made to reorganize, and a committee, which was appointed in 1886, had attempted for years to get action on its report but this was finally laid on the table. A committee consisting of McCormack, Foshay and Simmons began working on a scheme of reorganization. The outstanding feature of the new plan was the formation of a legislative body to be known as the House of Delegates. From this time the association has remained an absolutely democratic organization.

At the present time it is impossible to conceive of the difficulties that this committee on reorganization encountered. J. N. McCormack was one of the most, if not the most active member of this committee, and certainly accomplished as much, if not more, than any other one man for the reorganization and early development of the American Medical Association. Any community may well be proud of having produced a man like McCormack. In addition to all of the work that he did for organized medicine, he carried on an extensive surgical practice. The records tell of his having performed one of the first cesarean sections carried out in Kentucky, and also that he successfully resected twenty-two inches of colon and made an end-to-end anastomosis for a gunshot wound. In his later years, his time was largely devoted to public health work and to reorganization of the American Medical Association.

It must have been a great source of pride and satisfaction to McCormack, Simmons and Foshay to see their efforts rewarded in the final reorganization of the medical profession into this smoothly running, powerful association.

Since this time of reorganization, the organization of practitioners of medicine has progressed very rapidly. It is fitting that the activities of members of the medical profession should be organized, for it is only by

concerted effort that we can hope to accomplish what we have set out to do, which is to bring the best possible medical service to the American people.

The question often arises as to just how far this process should be carried. To organize to the extent that competition would be entirely eliminated would not be for the best. I think we all feel that active competition is necessary for satisfactory progress in any field. By this I mean competition in doing work well, and competition in obtaining good results which follows work well done. If we should continue our efforts to organize until we had reached the point where it would be unnecessary for the practitioner of medicine to keep up his reading of medical journals because his work was all cut and dried, and new and better methods were not of interest, then we would most assuredly have put a stop to progress. If we should organize our activities to the point at which it would be unnecessary to be attentive to the patient or interested in him as one who is sick, then I fail to see how we would have helped to develop the profession which is supposed to be spending its life and best efforts in the care of those who are sick.

If the medical organization should continue indefinitely to take over new responsibilities it could lead but to superorganization in which every physician would become a servant of the organization and real liberty would be lost. Victory over our difficulties will be won by the resolution of our members to fight their own battles in their own communities, by stimulating their ingenuity to solve their own problems, by taking new courage to be masters of their own destinies.

The art of the practice of medicine as carried out by the clinician or by the surgeon cannot be learned quickly, and vast experience is the best teacher. Not all members of the profession concur in this. I refer particularly to some of the younger practitioners, who think that after they have cared for one or two patients with typhoid fever or scarlet fever, for example, that they have had sufficient experience with those diseases, and that the treatment of similar cases in the future would require only routine following of the plan laid down. No amount of experience is too great.

Artistry and craftsmanship in the performance of surgical operations have saved many lives. Perfection in carrying out the technic of a procedure must be gained by long and careful training. Each operation must be performed many times before it can be undertaken with confidence and carried out without loss of time and without unnecessary trauma to the tissues. Each op-

erative field must have been encountered many times before the surgeon can feel confident that he knows the structures that he sees and feels so that he may proceed promptly with the operation suitable to the particular case. Even though we cannot hope to reach perfection in the practice of the art of medicine and surgery, if we are not careful in further developing our plans of organization, we shall do a great injustice to this science.

Both organization and administration in the field of medicine are being carried forward rapidly, and many are entering enthusiastically into activities of this nature. It can readily be seen that with further development, more complete organization, and better administration, our work may be much more easily performed, but is it not possible that the results obtained may be less satisfactory from the patient's standpoint? We might even reach a stage in which the surgeon would be assigned to perform an operation because it was in the plan of organization that he was the next one to be assigned to do this particular thing, and not because he had any special qualification for the work he was setting out to do.

Since the reorganization of the American Medical Association, most of the other medical societies have become organized on a truly democratic basis and each one has some form of legislative body or committee, a group of delegates, so that the control of organized medicine is in the hands of the men who are elected by members of the society. This results in the policies and activities of the society being in the hands of the members themselves.

I cannot conceive of a more satisfactorily organized group than are the physicians of this country through the American Medical Association, with its board of trustees, its several councils to attend to special affairs, and its house of delegates composed of representatives from each state society, which in turn are elected by delegates sent from each county society.

The great cry in the early days was for higher standards in preliminary education and medical education as well. Those who controlled the medical schools, which naturally were very inadequate and poorly equipped, wished to have all the students they could get; therefore, they kept the requirements for admission low, so that anyone who had a desire to enter the school was acceptable. On the other hand, the practitioners of medicine who were not connected with any school, wanted as little competition as possible, so they strove for higher requirements and more intensive training.

It required a considerable amount of work



and grief on the part of the Council on Medical Education and Hospitals finally to get the requirements for medical education regulated, to dispose of many inferior medical schools, and to classify the others. This Council on Medical Education and Hospitals has accomplished a great deal for organized medicine.

The scientific activities are equally well in hand through the efforts of the Council on Scientific Assembly, and in the state and county societies, through special committees.

The American Medical Association is now composed of more than one hundred thousand members. This large group of physicians, through its councils and committees, is doing most constructive work. In view of the fact that much of this work is routine, it is difficult to point out from year to year just what is being accomplished. Many of the activities are carried out over and over again, and their importance is not appreciated.

Questions of ethics, questions of economics, questions as to the feasibility of this, that or the other procedure, questions of all kinds are coming from all sources to the secretary, Dr. Olin West, and the other officers. They make an earnest effort to give intelligent replies and attention to all of these matters, and it is likely that this great service feature of the association's work is one of the most important of all.

In a letter Dr. West wrote to Dr. Morgan, he said that the work of any single bureau or council of the association would easily require a very long talk to present it intelligently to almost any audience. This is unfortunate for the reason that not even the membership of the association, let alone lay people, have any appreciation of the immensity and far-reaching importance of the association's work. There are more than 500 persons employed continuously in the association's headquarters.

The work of each particular council or bureau is of fundamental significance, requires highly specialized skill for its direction, and produces results that are of importance to every physician in whom it is possible to arouse any interest, to say nothing of its importance to the public. The story of the work of the Council on Pharmacy and Chemistry, if it should be told in detail, would be romantic, and if the inside story of the work of the Council on Medical Education and Hospitals or of the Bureau of Investigation, or of some of our other departments could be told, it would not only be romantic, but it would in some particulars be startling.

One of the crowning glories of the organi-

zation is to be found in the fact that it commands the unselfish and devoted services of some of the best and the busiest men in the profession, who travel thousands of miles each year, leaving their own affairs, and giving to the association the best efforts they can give, all without money and without price. There are men on some of the councils who have labored incessantly for years without receiving any material compensation. It is interesting to know that some of these men give half of their time the year round, and sometimes more than half, to the work of the association.

The Council on Pharmacy and Chemistry has been in existence for about twenty-five years. Its most outstanding accomplishment is safeguarding the profession and the public against useless, unnecessary and harmful drugs, and in establishing the use of therapeutic agents on a scientific basis. Practically all of the largest and best manufacturers send their therapeutic products for scientific investigation by the council. There is a chemical laboratory which works in close cooperation with the Council on Pharmacy and Chemistry.

The Bureau of Legal Medicine and Legislation keeps close watch over federal and state legislation and cooperates to the best possible advantage with the constituent state medical associations in connection with their legislative programs. This bureau also undertakes to provide information for the benefit of constituent state medical associations and county associations in connection with legislative problems.

The Bureau of Health and Public Instruction has to do with matters of public health, and provides helpful information to the public in matters which pertain to medicine and health. This bureau has charge of the broadcasting program of the association, and some members of the bureau have been engaged in intensive study of the physician's income and of the capital which he has invested in medicine. A report from this council concerning the cost of medical education in various institutions throughout the country has recently been made.

The Bureau of Investigation has conducted a persistent war on medical fraud. This bureau answers more than 10,000 inquiries each year from both physicians and laymen. It is recognized that the chief function of the medical profession is to carry on the practice of medicine, and to promote public health and preventive medicine. But one of its most important duties is to protect society against medical fraud and quackery. This Bureau of Investigation, through the *Journal of the American Medical Association*, is attempting to carry out this function.

One of the great problems confronting organized medicine at the present time is that of obtaining a closer relationship between the medical profession and the people. The by-laws of the Minnesota State Medical Association have provided for a Committee on Public Health and Education, some of the functions of which are to develop an intelligent public viewpoint toward the medical profession. Moreover, this committee cooperates with various agencies through the state, the purpose of which is to promote public health, and the governing bodies of which are in whole or in part laymen. This committee has been in existence for several years, and through the able efforts of its members, has accomplished a great deal. It has done much toward producing a united medical profession in the state. As a result, the Minnesota State Medical Association, the public health organizations, and any other bodies that deal with matters of health, are fused into one large group under the direction of a single secretary.

The most important feature in our Minnesota plan of organization is that every medical activity in the state is under the direct supervision of our executive secretary, who in turn is advised by the Committee on Public Health Education or by the Council of the State Medical Association.

That many of the state societies are making diligent efforts to secure better public relations is evidenced by the extensive discussions that are being carried on this subject.

It seems to me that regardless of what is being published from outside sources, the medical profession occupies a most important place in our social structure, and that through its plan of organization it is keeping pace with the times. Although the unsolved questions which confront the medical profession were never so varied, so vital, so profound as they are today; nevertheless, the profession will be able to meet these problems and to solve them to the best interests of society.

**Roentgenology of Appendix**—Larimore states that only roentgenology will develop the intrinsic and direct signs of appendical pathologic change. Roentgenograms will in a large percentage of instances show the appendical lumen. Often this will indicate definite anatomic changes. Chiefly with, but also without, visualization there may be adduced from the films and by fluoroscopic palpation associated evidence, which will have additional significance. Such objective evidence of anatomic change is not alone proof of an active relation to any clinical syndrome. It must find definite correlation to the clinical conditions.

## PUBLIC HEALTH EDUCATION\*

MRS. A. B. MCGLOTHLAN

St. Joseph, Mo.,

President Woman's Auxiliary, American Medical Association.

The immense strides which the medical profession has made in recent decades in the discovery of the causes, the cures and the methods of prevention of diseases have far outdistanced the ability of people generally to make practical application of these discoveries which have been made for their benefit.

The medical profession has promoted periodic health examinations of individuals, both children and adults, pre-school clinics and health centers have been established, and the physical examination of school children has come to be considered one of the school's essential duties.

These examinations have revealed the greatness of the gap between medical knowledge and its practical application in everyday life. Records of percentages of discovered defects have been published in thousands of publications and have been broadcast over the world through literature and by means of the radio.

The people of the United States being reasonably literate and intelligent, have become health conscious and are now and have been for some years "seekers after knowledge" as to how to avoid and correct the physical defects so generally found to exist.

Faddists and fakers have preyed upon this awakened health consciousness with false information and quack cures; commercialists have made capital of it by advertising that their wares possess peculiar health properties; certain species of commercial writers have seized upon it to fill columns of newspapers, pages of magazines and even whole pamphlets or books with unauthentic or pseudo-scientific information.

An unwary and indiscriminating public is the victim. The great pity of the situation is that the public does not know that it is being victimized and frequently having only such misinformation as that just alluded to it aids and abets legislators in making undesirable health laws and disastrous medical practice regulations for all the people.

Practically all important organizations of today, groups organized to promote general social progress, the number of which is legion, have the promotion of health education or health projects as a part of their program.

In most of such organizations of men, doc-

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tors have the opportunity to participate and to guide the thinking and planning of the group and to keep their plans and activities consistent with modern scientific knowledge.

But doctors do not have access to women's organizations (which are more numerous than men's organizations), except by special invitation, which it is to be regretted, is not frequent enough, particularly if such organizations sponsor a health program.

Many women's organizations, although prompted by altruistic motives, due to a lack of the right kind of information, have frequently not been discriminating in their choice of literature or of speakers used on their health programs.

Moreover, sometimes men and women have individually and as groups used their influence to secure the passing of health or medical laws detrimental to themselves and their families, because they have failed to secure authentic information on both sides of the questions being considered, before forming their opinions.

The questionnaire sent by an Auxiliary member last year to doctors' wives to ascertain to what extent they are members of other women's organizations revealed that most of them belong to one or several such organizations. (It was interesting to note that one woman confessed to membership in seventeen such groups).

The Auxiliaries to the medical societies and many members of medical associations themselves believe that as wives of doctors the Auxiliary members have special opportunities for disseminating through other women's organizations to which they belong such information as the medical profession believes that it is beneficial to the public to possess. They believe that they owe a special obligation and can perform a very definite service to the public and to the profession at the same time (because whatever legitimate thing is of benefit to the one, benefits also the other) by influencing the groups of which they are members to go to the one authentic source, the medical profession, for its health literature and its health speakers and to become familiar with both sides of proposed health and medical laws, before attempting to influence their legislators to vote a certain way upon such laws.

The medical profession assumes as one of its functions the prevention as well as the cure of diseases, and it uses many methods to aid in keeping people as well as possible and in getting them to come to the doctor for examination before it is everlastingly too late.

To this end several state medical societies have prepared programs of study to be used in their Woman's Auxiliaries and in wom-

en's organizations to which the Auxiliary members belong; to this end the American Medical Association maintains a "medical broadcast" of health talks each week at 10 a. m., on Monday and 10:30 a. m. on Saturday over station WBBM; and over the Columbia Broadcasting System on Monday Wednesday, Thursday and Saturday from 1 to 1:05 p. m., daylight saving time.

To the end that the public may have authentic literature free or at a reasonable price the American Medical Association maintains its Bureau of Health and Public Instruction. The American Medical Association maintains also a Bureau of Investigation, which has for its primary object the dissemination of information on the nostrum evil, quackery and allied subjects.

One of the jobs for which the Woman's Auxiliary to the American Medical Association has assumed responsibility this year is to inform the groups in which its members work concerning these services of the American Medical Association.

One of the greatest responsibilities which the American Medical Association has undertaken in educating the public to secure authentic information and scientific care for itself by looking to the medical profession for both, is the publishing of the health magazine, *Hygeia*.

*Hygeia* is a health magazine "for every person in every walk of life," its articles are contributed by eminent physicians and scientists and it is written in plain, understandable language.

When the public is ill it goes sooner or later—frequently *too late*—to the family physician to restore its health. *Hygeia* teaches the public to go to the medical profession for knowledge that will *ward off* disease. It teaches the public to seek the cure of disease *before* it is *too late*, which is a benefit to the public and a great source of satisfaction to the doctor. With how much more joy would a doctor's life be filled if he could be relieved of patients who come *too late*, who tried everything else first before coming to the only scientific helper, the doctor.

Mothers who read *Hygeia* find great satisfaction in the advice it gives them on child feeding and child training in physical and mental health habits. Doctors frequently select articles from *Hygeia* for mothers of their child patients to read so that the mother may cooperate more intelligently with the doctor.

Teachers, most of whom are poorly trained in health teaching, find *Hygeia* a store house of information on health habits, on foods, sleep, exercise, sunshine and fresh air and on the prevention of the spread of communicable

diseases in the school.

Both mothers and teachers find the health stories and rhymes and plays in each issue which are specially written for children, replete with physical and mental health lessons expressed and illustrated in an appealing way that insures the appreciation of them by children.

Stories of the lives and work of "Heroes of Medicine" and "Pioneers of Medicine" have conveyed to the public, particularly to school boys and girls to whom adventure makes a strong appeal, what Pasteur and Lister and Koch and Ehrlich and Biggs and a host of others have done to prolong life and to make the world not "safe for democracy," but a safe place in which to live a longer and more satisfying and successful life. I know of no other short biographies written so entertainingly and with the possibility of being read so widely that give to people such a good idea of the sacrificing, self-effacing labor that medical research workers have done.

Teachers delight in assigning these brief biographies, replete with adventure, to boys and girls for outside reading and reports. The boys and girls learn through the stories to honor and respect a profession to which such men as Pasteur and the others mentioned were devoted.

Even the advertising in *Hygeia* is educational, being scrutinized and passed upon by the Bureau of Investigation of the American Medical Association and kept free from exaggeration which characterizes much advertising.

The House of Delegates, in session at the American Medical Association in Philadelphia in June, passed the following resolution upon recommendation of the Reference Committee on Hygiene and Public Health:

"WHEREAS, The periodical *Hygeia*, the health magazine published by the American Medical Association, is the only authentic health periodical available in this country; and

"WHEREAS, This periodical was established by the Board of Trustees on recommendation of the House of Delegates to be the official voice of the American Medical Association in educating the public in matters of health; and

"WHEREAS, It is the best medium for reaching the teachers and the young, and the pupils in schools throughout the country, informing them of the progress of medical science and of scientific means for the prevention of diseases; therefore be it

"Resolved, That the House of Delegates urge the Woman's Auxiliary to the American Medical Association, including the coun-

ty, state and national organizations, to recognize as one of its chief activities the promotion of the distribution of this publication through parent-teachers' associations, boards of education and similar bodies interested in education."

The Auxiliaries are committed to following the advice of their respective medical societies or association. Therefore the Woman's Auxiliary to the American Medical Association has undertaken to promote "the distribution of this publication through parent-teacher associations, boards of education and similar bodies interested in education."

Our plans for promotion are already in the hands of state and county *Hygeia* chairmen.

To succeed we must have the whole hearted support of state and county medical associations, the constituent members of the American Medical Association, from which came the assignment of this task to the Auxiliary.

May we depend upon the doctors of Kentucky to lend to their Auxiliaries their own influence and cooperation in putting Kentucky on the *Hygeia* map?

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**Aneurysmal Tumor of Uterine Artery After Subtotal Hysterectomy**—Morice reports a case of an aneurysmal tumor in a woman. The patient began to feel vague, dull pains in the hypogastric region. Three months later the pains suddenly became intense and piercing; they were accompanied by severe nausea without vomiting and by marked constipation. The only significant fact revealed by the anamnesis was a subtotal hysterectomy for salpingitis five years previously. Digital examination of the vagina showed the cervix of the uterus to be neither softened nor dilated though its mobilization was painful. In the right culdesac was a globular mass the size of a large nut over which the vaginal mucosa moved easily but which was extremely painful on pressure. The pains became so intolerable that immediate intervention seemed expedient. An aneurysmal tumor almost ready to rupture, was found at the termination of the uterine artery. The veins also were involved in the growth. However, the fact that the ureter extended through the entire tumor made it impossible to remove it except by fragmentation. It could not be determined, therefore, whether it was a simple arterial aneurysm or an arteriovenous aneurysm. The chief point of interest is the fact that the tumor developed at the point where a ligature had been made, after the hysterectomy. The growth was undoubtedly caused by a wound of the uterine artery by the point of the needle used in making the ligature.



## ORIGINAL ARTICLES

AN UNUSUALLY EXTENSIVE FECAL  
FISTULA\*

ARVID O. TAYLOR, M. D.

Maysville

The case I am about to report is interesting to me in two ways: First and foremost, from a clinical viewpoint; and, secondly, from a criminological aspect.

We often see cases reported of rupture of bowel from compressed air driven into rectum, as result of practical jokes played by fellow workmen, which turned into tragedy. This case is a demonstration of how, from strong drink and insane and uncontrolled passion, men can become demons.

The victim of this dastardly attack was John W., aged 19 years, height 6 feet 2 inches, weight 160 pounds, father living and 47, mother died aged 48 of obstruction. John engaged in a drinking carousal with some older men and wound up lying, apparently dead and with many wounds, at midnight on a lonely country road. One wound of the anus was made by a tire tool, made from an auto spring, being plunged into his fundament while he was on his hands and knees trying to defend himself from attack by three men. He was deserted by his attackers and left unconscious for hours; but, finally, help came and he was taken to his home, where he remained a week with very little care or attention.

On November 27, one week after the injury, he was brought to the Maysville Hospital, wearing the same underclothing in which he was attacked. His condition on arrival was very grave. He was in delirium, abdomen greatly distended, retention of urine which had never been drawn, left gluteal region and left thigh greatly swollen and discolored, hot and tender, showing every evidence of an extensive, virulent, deep-seated infection. He was covered with many contused wounds and at posterior margin of anus there was a lacerated tear 2 1-2 inches long. Digital examination of rectum disclosed a rent in anterior wall which would easily admit tips of two fingers. The capsule of prostate was lacerated, also the wall of the urethra at the prostatomembranous junction of that canal, accounting for the retention and the subsequent urethral stricture.

From the wounds in the anus and rectum, there poured the dirtiest, foulest discharge imaginable. It was so very foul that we

found it necessary to use deodorants when dressing the case.

The next day, November 28th, an incision was made on the post and outside surface of the left thigh just above the knee, through which gas, pus, blood and fecal matters gushed with such pent up force as to splatter across a good sized room. The gluteal region was also incised and through these openings, with that in the bowel wall, irrigation was kept up for weeks. There was free connection between all the openings and fecal drainage from all, especially if a tube was not kept in bowel. The unusual thing about this case to me is how far fecal matter and infection could travel from its source. The infection spread from the rectal rent into the surrounding cellular tissue and out through the sacro-sciatic foramina; above through greater and thence through fascial planes of glutei and on to dorsum of ilium below the pyriformis through the lesser sacro-sciatic foramen and along the course of sciatic nerve between the ischium and greater trochanter, dissecting a wide path along the fascial sheaths of the flexor muscles of thigh to knee joint. The whole area was bathed in feces accompanied with the most virulent infection.

During the first few weeks he suffered the most excruciating pain and was in almost constant delirium. The condition of the patient continued very grave for two or three weeks. Several days after adequate drainage had been established, the temperature was 105 4/5, pulse 152, respiration 38, with chills, sweats and constant delirium. Finally he began to show some improvement, and he was discharged from the hospital forty-six days after injury with wound in rectum healed, but with the gluteal and thigh incisions still draining.

*Treatment:* Morphine for pain, urotropin as urinary antiseptic, catheter for retention. The first time he was catheterized 43 oz. urine was secured. Irrigation with everything from saline to Potassium Permanganate.

*Result:* Six months later this patient had recovered his normal weight and was able to work, but he has occasional retention of urine due to the stricture in post urethra and he reports complete impotence.

P. S.—The attackers of this man are now doing time at one of the state penal institutions.

\*Read before the Kentucky State Medical Association at Lexington, September 7-10, 1931.

# TORSION OF A NORMAL OVARY AND TUBE WITH RUPTURE OF THE OVARY AND REVIEW OF ALL LITERATURE TO DATE\*

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AND

CHARLES BARON, M. D.

Covington

This paper is presented because of the relative rarity of literature on torsion of the normal ovary and the limited remarks found in the text books on gynecology. Torsion of uterine adnexa, both pathological and normal, are relatively rare, but more so when the structures are normal. Our paper deals only with normal structures in all. Thirteen cases have been reported in the available literature in which the normal ovary has been involved, and we wish to add one more, making fourteen in all. In addition, we believe that our case is the first on record in which rupture of the ovary occurred after torsion.

The first case ever reported was by Hartman (1) in 1898. The youngest patient ever reported was four months old, reported by Rost (2). It is interesting to note that of such a rare type of surgical abdomen, two men, Norris (3), (4), and Munroe (5) report two cases each.

Those cases in which the normal ovary was involved alone, are reported by Norris (3), (4), Barrington (6), Johansson (7), Rost (2), Bauer (8), and Bernard (9). The last mentioned occurred during pregnancy. Those cases in which the normal ovary was twisted with the normal tube are reported by Auvray (10), Cassidy and Norbury (11). Munroe, 2 cases (5), Aulhorn (12), and Hartman (1). The last two also occurred during pregnancy. Our case is reported as one where both ovary and tube were involved.

## REPORT OF CASE:

W. S., a girl seven years old, was admitted to The William Booth Memorial Hospital at 9 p. m., May 14th, with the following history: Four days previous to hospital entrance, while straining at stool, she experienced a severe pain in the abdomen, making her cry out. When she stopped straining a dull generalized abdominal ache persisted, but upon straining again the sharp pain would return. Oil and calomel taken later on the first day failed to cause a bowel movement. She was later given some Dover's powder to allay the pain, but it was not effective. Every day she was given a high enema and only on the

day previous to hospital entrance and on the entrance day did she have a bowel movement. She did not give a history of constipation. but it was significantly brought out that in the past year she had varying degrees of pain while straining at stool, and for the past year and a half she had been given four drams of Nujol every night. However, she had no previous attack similar to the present one. She had no fever until the day of hospital entrance.

When admitted, the patient was flushed. She had considerably dehydrated and could keep nothing down by mouth. The head and neck presented no abnormalities. Examination of the chest revealed the heart borders within normal limits, with no murmurs, thrills or arrhythmias. The lungs had normal breath sounds, with no increased dullness or resonance. The liver and spleen were not palpable. There was slight rigidity over both recti muscles below the umbilicus, with moderate tenderness over most of the lower half of the abdomen, but there was no distinct point of tenderness. No mass was palpable. The patient was more comfortable when the thighs were flexed. The temperature was 101, pulse 128, the respiration 26. The urine was normal. W. B. C. 25,000.

The preoperative diagnosis was acute appendicitis with a mild peritonitis. The child was operated upon by Dr. J. D. Northcutt. A right rectus incision was made. When the peritoneum was incised a small amount of sero-sanguinous fluid escaped. In the pelvis, in the midline, was found a mass shaped like a kidney, the size of the small intestine in diameter, attached to a pedicle about three centimeters long. On its medial side could be seen the right fallopian tube. On its lateral side could be seen a rent, about 1.5 cm. long and no blood issuing from it. The pedicle was twisted clock-wise three times. The pedicle was clamped, tied, and cut, and the mass was removed. The appendix was somewhat reddened due to the mild peritonitis present, and was also removed.

For the first two days she was so extremely dehydrated and distended that recovery was considered uncertain. She continued to vomit for three days and it seemed that fluids supplied subcutaneously was the thing that brought about the turning point in her convalescence for the better. Approximately 3,700 c.c. of normal saline with 5 per cent glucose was given in the first sixty hours. Her temperature fluctuated between 103 and 100 for three days and then gradually came down to normal on the seventh day. From then on her convalescence was uneventful. She went home on the fourteenth day.

The pathological report was as follows:

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The tissue grossly resembles a fallopian tube and ovary, the pathology of which could be due to a twisted pedicle cutting off the blood supply. The ovary measured 7 cm. long, 3.5 cm. thick, and 3 cm. wide. It closely resembles a kidney in shape. The surface is smooth, glistening, dark red and firm. On the lateral side is a rent, 1.5 cm. long and .5 cm. deep. It weighs 21 gms. On cut section, the tissue is dark red, with practically no differentiation of parenchymatous tissue. However, upon washing with water, normal follicles can be seen, especially near the surface. No cysts are present. Microscopic examination reveals sections filled with red blood corpuscles, almost displacing most of the normal tissue. In washed out sections normal ovarian tissue is seen. Diagnosis: Torsion of normal ovary and tube with rupture of the ovary.

Such a unique case presents immediately the question of its etiology. In reviewing the literature, we came upon the following discussions, which in many respects coincide with our findings and seem to strengthen the hypotheses offered.

Munroe (5) states that in each one of his cases the uterus was very small and infantile in type, scarcely large enough to locate by touch and therefore believes that this condition had something to do with the etiology. Rost, (2), however, dismisses anatomic anomalies from the pathological report and the surgeon's findings and brings in the question of pressure. He goes on to say, "Pressure or compression cannot, however, be readily dismissed as possible etiologic factors when we recall that the child suffered from marked constipation since birth and when stools were passed they were hard and dry, necessitating a great deal of straining and intra-abdominal pressure to cause an evacuation. Is it not reasonable to assume that accumulated hard fecal masses and the intense straining would cause compression and stasis of the blood supply to the organs and then start a torsion?"

Norris (3) in his first case report suggests the following possibilities: 1. Light adhesions present, which either ruptured spontaneously shortly after the torsion had occurred, or were torn asunder during the course of the bimanual examination. 2. Previous to twist occurring, the ovary perhaps originally large and heavy, had drawn away from the broad ligament, forming a sort of pedicle (as was Norris' own case.) 3. It seems quite possible that a heavy, overloaded and prolapsed flexure sigmoid might by its peristaltic action, be productive of a condition of this kind if associated with a prolapsed and enlarged ovary. Constipation also tends to produce congestions of the pelvic organs, as in the

cases Rost (2) and Norbury (11). 4. Menstruation, as in the cases of Norris (3) and Auvray (10); and pregnancy, as in the cases of Hartman (1) and Bernard (9), in causing pelvic congestion.

In his later discussion Norris (4) states, "We all know that there are certain factors that bear a definite relationship to the torsion of ovarian neoplasms, namely, the size of tumor, the irregularity of its shape, the length of its pedicle, the amount of intra-abdominal pressure, the action of the diaphragm, the peristaltic action, etc. None of these factors, however, has a definite bearing on this type of lesion occurring in so-called normal ovaries. I doubt whether a normal ovary ever undergoes torsion, except when it is attached to some other structure or in a hernial sac. However, the first case that Norris reported (3) was entitled "Torsion of Normal Ovary," and neither of the two factors above stated were mentioned as to its possible etiology. Bell, British gynecologist, advanced the theory that anything that will cause a partial blocking of the return circulation, the vein, having a thinner coat than the artery, would be the first to become compressed. This would cause congestion. The pumping of the blood into the adnexa of the patient's artery would have a tendency to straighten out the tortuous, corkscrew-like, as it were and in so doing would twist the ovary."

Smith and Butler (13) in their excellent and inclusive article on "Torsion of Uterine Adnexa," seem to epitomize best with the aid of quotations the entire subject of etiology. They state "Payr (14) would seem to give support to the theory that venous congestion in a pedicle is conducive to torsion. Anspach (15) also describes this. The cases reported of torsion of the normal ovary are more susceptible to proof and it is very difficult to dispute the histologic evidence presented in these cases. As to why a normal tube or ovary or both should become twisted. Auvray (10) is somewhat in doubt, but thinks possibly all causes which bring about tubal enlargements and ovarian tumors must be included. Abnormal length of the tube or of the mesosalpinx or mesovarium would certainly also be a factor. It is conceivable that a slightly enlarged and prolapsed ovary, which we may regard in the strict sense as nonpathologic, could become twisted. Auvray (10) believes that a spiral course of the tube, which is normally present in fetal life and may persist as a congenital anomaly in the adult to a marked degree, may be a predisposing factor. Under the influence of the passive congestion of pregnancy or the menstrual period, he thinks that the tube may

be increased in volume, may twist still more and go on to complete torsion according to the theory of Payr (14). All this, of course, is merely speculative and is impossible to prove."

While the factors of pregnancy and menstruation do not concern our case, we believe the following factors contributed to the torsion of the tube and ovary. First, we believe that our patient had originally a large ovary, etiologic factor stressed by Norris (3) and Auvray (10). Second, the ovary had an abnormally large pedicle that had formed when the large ovary had drawn away from the broad ligament, also suggested by these two men. Third, with these two factors already present, her straining at stool for the past year was the needed factor to bring about repeated pelvic congestion and bring about the torsion, as stressed by Rost (2). The unique complication of rupture can easily be explained by the tremendous intraovarian pressure that the ovarian arteries must have exerted.

#### CONCLUSIONS

1. A case of torsion of the normal ovary and tube with rupture of the ovary was observed. This is believed to be the fourteenth case on record in which the ovary was involved.

2. We believe that this is the first case on record in which rupture followed the torsion.

3. In the differential diagnosis of abdominal pain in young girls, torsion of the ovary must be considered, particularly when associated with pain upon straining at stool.

4. Anatomic anomalies must be considered a strong factor in the predisposing causes to torsion of the normal ovary and fallopian tube.

#### REFERENCES

1. Hartmann, Ann. de Gynec. 1, 167, 1898.
2. Rost, W. L., Twisted Ovarian Pedicle, Infant., Arch. Pediatrics, 40; 787-789; Nov. 1923.
3. Norris, C. C., Torsion of Normal Ovary., Proc Path. Soc. Phila., n. s. XIV, 77, 1911.
4. Norris, C. C., Am. Journal of Obstetrics, 2; 545; 1921.
5. Munroe, N. S., Acute Torsion of Ovary in Young Girl. Report of Two Cases. Columbus, Georgia, Med. Ass. Journal, August, No. 9, Jan. 6, 1916.
6. Barrington, F. J. F., A Case of Torsion of Normal Ovary. J. Obst. and Gynec. Brit. Emp. London, XXVII, 141, 1916.
7. Johansson, S., Ein Fall von Torsion der Ovarium. Nord. Med. Ark., Stockholm, affd., No. 1, 1-14, 1917.
8. Bauer, Isolated Torsion of a Normal Ovary. Zentralblatt f. Gynakologie, Leipzig 52; 2561-2624, Oct. 6, 1928.
9. Bernard, R., A Case of Torsion of a Normal Ovary During Pregnancy. Bull. et mem. Soc. nat. de chir., Par., 55; 651-654, May 18, 1929.
10. Auvray, Un cas de torsion spontanée de la trompe et de l'ovaire normaux. Bull. Soc. d'Obst. et de Gynec., 1, 727, 731, 1912.
11. Cassidy and Norbury, Torsion of the Left Broad Ligament and Fallopian Tube in a Child. Lancet, London, 1, 98, 1911.
12. Aulhorn, Zentralblatt f. Gynec. No. 16, p. 538, 1910.
13. Smith, R. R. and Butler, W. J., Torsion of Uterine Adnexa with Complete Literature since 1900.
14. Payr, Deutsch. Ztscher. f. Chir., 1, XXXV, 392, 1906.
15. Anspach, Am. Journ. Obst. 1, XVI, 553, 1912.

## SPONTANEOUS EXPULSION OF UTERINE FIBROID\*

K. W. BRUMBACK, M. D.

Cynthiana

I first saw this patient, a married woman forty-one years of age, in March, 1930. She stated that she had been in ill health for over a year. Her chief complaint was extreme weakness and nervousness. Loss of strength had been gradual. At this time she could sit up, but could not get about without assistance. Occasionally there were chills and frequently severe night sweats. There was almost constant severe pain in the right arm and right side of the neck, but no pain elsewhere. The patient stated that she frequently felt numb all over. Four months previously she had suddenly lost her voice and at this time could still not talk above a whisper. The patient coughed a great deal and hemoptysis occurred frequently. On two occasions there was severe pulmonary hemorrhage. She also stated that she was conscious of a feeling of weight in the pelvis.

Her general health before onset of present illness had been excellent. About fifteen years ago she underwent an operation for ruptured tubal pregnancy.

The patient was very short of breath on slight exertion and was subject to palpitation. During the past two years there had been marked edema of the ankles.

Anorexia existed at this time and constipation was stubborn. There was occasionally nausea and vomiting. Urination was frequent and at times there was pain and burning.

Menstruation had always been regular until onset of present illness. At this time the patient menstruated about every two weeks, but not profusely. Leukorrhea was slight. The patient had one adult child and no miscarriages.

On examination the heart and lungs were negative. Palpation of the abdomen disclosed a mass in the region just above the pubis. This mass was spherical in contour and very firm. Bimanual examination showed an enlarged uterus, which was smooth and resistant. The cervix and vagina were normal.

Urinalysis at this time was negative.

A diagnosis of uterine fibroid was made and surgery or X-ray advised, but the patient refused.

About four months later, in July, 1930, I was again called to see the patient. At this time she was unable to be out of bed and was suffering severely from cramp-like pains in the lower abdomen. Bleeding from the uterus

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was very frequent and at times profuse. During the past few weeks the leukorrheal discharge had been severe. The patient also stated that a few days ago after a severe attack of vomiting she suddenly regained her voice. At this time she was having attacks of diarrhea. During the past month there had been no hemoptysis. The mass in the abdomen seemed larger than when first examined.

During the next few weeks the pains became more severe and more constant. The patient stated that they felt like "labor pains." Morphine eased the pain, and during the next week or so the pains gradually became farther apart and finally ceased.

Two weeks later the abdominal pains recurred, coming on gradually and growing worse each day. The patient was unable to retain nourishment and was rapidly becoming weaker. After a few more days the pain was almost constant and unbearable and during this attack the patient spontaneously expelled a large tumor mass from the uterus. This mass was about the size of a grapefruit and was pear shaped. It was smooth in contour and pale. It cut with resistance and was of a leathery consistency. On section it was made up of whorls of pale fibrous tissue. Following the expulsion of the mass was a large amount of thick white mucous and directly after this a large amount of blood. On palpation the tumor mass had disappeared. The patient felt a great deal easier, but mild cramps still persisted for several days.

During the next few months the patient improved rapidly and gained about thirty pounds in weight. She still complained of having occasional attacks of pain in the lower abdomen. Bimanual examination at this time showed a slightly enlarged and firm uterus. Surgery was advised, and the patient consented, but when the time arrived for operation, she lost courage and refused to have it done.

From January until August 30, 1931, I did not see the patient, as she was living with relatives in a neighboring town. On the latter date she returned to her home and was again suffering from frequent cramping pains in the lower abdomen. She stated that constipation was worse of late and the bowels had moved very little during the past few days.

The patient was removed to the hospital and during the next two days we were able to get the bowels to move but very little. She vomited a few times, but there was no fecal odor to the vomitus.

The patient finally consented to be operated upon. On opening the abdomen we

found considerable free fluid present. A large amount of the ileum was very much inflamed and multiple adhesions were found, causing partial obstruction of the bowel. The uterus was somewhat enlarged, spherical and very firm—about the size of an orange.

Because of the multiple dense adhesions and the inflamed condition of the bowel, only a few of the adhesions were separated, a tube was inserted into the ileum above the obstruction and the abdomen closed.

### AN ATYPICAL CASE OF RUPTURED SUBPHRENIC ABSCESS\*

E. F. SHEPPARD, M. D.

Jenkins

Mr. M. S. Dunham, Kentucky, case No. 1798. Admitted May 3, 1931.

Age 43, white American, married twenty-three years. Occupation, coal miner.

Wife and eight children, living and well. No miscarriages, abortions or stillbirths. Family history is negative.

Admitted to Jenkins Hospital twelve hours after onset of present illness.

Chief Complaint: Pain and tenderness in the epigastrium, nausea, vomiting and shortness of breath. States that while loading coal early that morning he was seized by sudden and intensely violent epigastric pains, a feeling of weakness and faintness, followed shortly by nausea and vomiting. He vomited or attempted to do so on standing erect or by taking fluids. Pain and discomfort was accelerated by body movements. He was helped out of the mine by fellow workmen and put to bed. His pain having grown worse, a physician was called to see him, who advised immediate hospitalization. During the time which elapsed from onset of illness to time of admission, the pain as well as general condition had grown worse and some abdominal distension had developed. No pain in chest or any other portion of the body.

Past History: Aside from the ordinary childhood diseases, he had influenza in 1918. About three years ago he had what he termed left side pleurisy, a diagnosis of such not having been made by a physician, this illness being described by him as follows: "Awoke with pain over lower left ribs laterally, not associated with cold or cough. Pain was aggravated by deep breathing. Recovered in ten days." No medical aid was instituted. For the past three years he has had "stomach trouble." He first noticed that he was hungry most all of the time and that food did not seem to satisfy. He soon began to be

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annoyed by nausea, vomiting and a burning pain in his stomach. For the past two years has had paroxysms of pain coming on shortly after eating. When taken in large amounts, food produces nausea and vomiting. Emptying of stomach brings instant relief, which is followed by burning and eructation of acid. Heavy meats, sweets and hot foods disagree with him most. Has lost twelve pounds in weight in the past six months, however, he has not lost any time from work in the past year. In fact, his record at the mine shows that he loaded nine tons of coal on last shift which ended with onset of present attack.

He has had no night sweats. Does not think he has had any afternoon elevations of temperature, no chills, no jaundice, shortness of breath or swelling of the extremities. Denies having had any venereal disease. No previous similar attack. He is a man of good habits and above the average in intelligence.

Examination: Well developed, fairly well nourished white male, age apparently 45. Temperature 97, pulse 90, respiration 28. Blood pressure, systolic 115, diastolic 75. First seen lying on the examining table expressing great pain. Appeared to be critically ill, the face livid, skin cold and clammy, the abdomen slightly distended and inflexibly rigid. The point of maximum intensity of the pain, rigidity and tenderness was slightly to the right of the mid line, between the umbilicus and costal arch. Pressure over the epigastrium caused great pain; in fact, patient resented being touched anywhere over the abdomen.

The chest was well formed and equal on the two sides, in development and respiratory excursions. There was short, difficult breathing. Lungs were normal. No masses found, neither could there be demonstrated free or localized fluid. Liver not enlarged to palpation. A tympanic note was elicited on percussion over the epigastrium and lower costal margin on the right.

The urine was negative.

The erythrocytes numbered four million, three hundred thousand. Total white, thirteen thousand, with 78 per cent polymorphs.

After considering the patient's history along with the picture he presented, we felt sure we were dealing with a ruptured gastric ulcer and in order to save time, we side-stepped the X-ray man, the patient was placed on the operating table, anesthetized and the operative field prepared, after which the abdomen was opened by an incision of ample size to the right of the mid line above the umbilicus. On opening the peritoneum, pale yellow pus-like material of thin consistency was found, which first appeared to be coming from below. No gas detected. The appendix was examined and appeared to be

practically normal. Further exploration revealed an abscess located to the right of the falciform ligament between the liver and the diaphragm. The abscess cavity had been almost obliterated by spontaneous rupture at its dependent portion. Plastic lymph had marked the nearby structures. The gall bladder appeared to be inflamed, but on examination, the walls had the normal velvety feel and emptied readily. Save for the effect of the abscess on the immediate liver tissue, nothing abnormal could be found in the liver. The stomach was carefully examined, but no evidence of disease found. We found no adhesions or glandular enlargements to speak of previous processes. The appendix was removed, and the abdomen drained by means of rubber drains through main and counter incisions.

From specimens of blood collected before the operation later came the report, negative Wasserman and Kahn. From the appendiceal tissue, the finding of a mild chronic inflammation and from pus collected at the time of the operation, the bacteriologist reported the finding of many staphylococci organisms.

The patient was very sick for several days; however, he made a satisfactory recovery and was discharged from the hospital on June 24, 1931.

On July 1, he returned to the Out Patient Department. The abdomen was completely healed. X-ray and fluoroscopic examination showed the right diaphragm elevated, with slightly limited excursions. Lungs normal.

On July 20, a barium meal was given and a G. I. series run. The stomach filled entirely in the normal manner. No niche or filling defect could be demonstrated. Emptying time was normal. No intestinal deviations.

On August 20, patient was admitted for X-ray study of liver and gall bladder, nothing abnormal being found.

Patient has been working for the past two weeks and appears to be cured.

The above case is a peculiar one, due to the fact that the history and clinical picture was atypical throughout, too, because of the uncertainty as to cause of the abscess found. It is also interesting to note that this man could carry such an abscess as he had and do heavy manual labor without coming down until it ruptured. However, the point of most importance is that X-ray examination was omitted, too much stress being placed on the history and physical findings. Therefore this single case report is another link in the chain of evidence which convicts the person or persons who fail to use every available diagnostic means or method in an attempt to arrive at a correct diagnosis before operation.



POISONING BY WILD PARSNIP  
(HEMLOCK)\*

L. L. TERRELL, PH.G., M. D.

Corbin.

Hemlock poisoning is of great antiquity, it being the poison which furnished the death-draught of Socrates. There are many species in various parts of the world, but the one which especially interests us is *Conium Maculata*, and is known under a variety of names: Wild Parsnips, Water Hemlock, Cowbane, Beaver or Muskrat poisoning, Children's Death, etc. This is one of our most common swampweeds, growing abundantly along streams, ponds, ditches and wet meadows, throughout the Eastern and Central portions of the United States.

The stem, which has not an unpleasant odor, is mistaken for *Angelica* and the highly attractive fleshy roots for Jerusalem artichokes or other edible tubers. The important active constituent appears to be *cicutoxin*, which is not found in the fruit, but is found in the root and probably the stem. It is an amorphous, tenacious, non-drying, resinous substance, occurring in bright yellow drops soluble in alcohol, ether, chloroform, alkalies and hot water.

To date three cases of poisoning have come under my observation. The first two presented the ordinary symptoms, nausea, vomiting, weakness, stupor, sub-normal temperature, with surface of body cold and clammy. The above symptoms all cleared up and the patients seemed normal in five to six hours. The third case which I wish to present was quite unusual in many of its manifestations.

Child, male, three years of age, no past history of any other severe illness. Suddenly began to complain of headache and dizziness, and upon inquiry by his parents, they elicited the fact that he had eaten the root of wild parsnip a few minutes previously. I saw the patient about forty minutes after he had eaten it, and found him in the midst of a severe convulsion. Soon after which he became very limp, surface of body cold and clammy, nausea, but no vomiting, muscles relaxed, eyes sunken in head, lids appeared heavy, pupils dilated. Heart beat at first slow, later becoming fast and weak. Second sound almost inaudible, pulse at first 54, one hour later 136. Respiration reached as low as 7 per minute. Temperature 96, blood pressure quite low.

Differential Diagnosis: The history of eating the roots cleared up any doubt as to differentiation between cholera infantum,

mushroom or of any other poisons.

On the second day I found him still in a comatose condition, breathing about normal, pulse still fast, but better volume, refusing to take any nourishment. Diarrhea still quite severe. Stools composed mostly of blood and mucus.

Urine scanty, highly colored, high specific gravity, contained a trace of albumin, and showed a number of red blood corpuscles and a few fine granular casts with red cells adherent. On the third day the patient still very stupid, extreme pallor was noticed at this time, also slight edema under eyes. Not much change in pulse, respiration or blood pressure. Urine increased in amount, but appeared to be almost 50 per cent blood, also an abundance of albumin. Microscopic examination of urine showed mostly red blood cells, a few leucocytes and fine granular casts.

His condition remained about the same until the seventh day, when he appeared more rational, appetite began to reappear and only slight edema under eyes. At no time was there any edema except of the face. Urine had increased in amount, and contained less blood and albumin.

On the eighth day I found him feeling fine, wanting to get up, and from this time on he made an uneventful recovery, although the urine showed some red blood cells until about the end of the third week.

Treatment: Initial poisoning was treated with repeated tannic acid lavages at intervals of thirty minutes, external heat, and stimulants such as strychnine, black coffee, strong tea, whisky and caffeine-and-sodium-benzoate. Artificial respiration was necessary at times. A mixture of bismuth and opium was given for diarrhea. The kidney condition was treated by rest in bed, elimination, low protein and salt free diet. Iron, manganese and copper were given later to combat the anemia.

## CONCLUSIONS

(1) A great many poisons can be successfully treated by tannic acid, as the tannates are absorbed very slowly.

(2) In the case which I have presented there was no vomiting, which accounted for the severity of the symptoms and the complications.

(3) Undoubtedly an acute glomerular nephritis developed as secondary to the toxin of the poisoning, as there is always some source of toxins which bring on the disease and should be sought for and removed.

(4) In acute glomerular nephritis there is very little edema and an abundance of blood in the urine, whereas in acute tubular nephri-

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tis there is marked edema of the entire body and very little, if any, blood in the urine.

(5) Three months later on examination I found the child red and robust and had undoubtedly made a complete recovery, as both chemical and microscopic examinations of urine were negative.

## DIAGNOSIS AND TREATMENT OF LATENT SYPHILIS\*

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Louisville.

The term latent syphilis would presume a persistently negative Wassermann with no pathological processes in any organ, as well as no outward manifestations of the disease, which in the absence of history, would present a most difficult problem in diagnosis. To my mind, concealed or endo-syphilis would be a much better term, as this period of syphilis often shows pathological processes in aorta meninges, brain, testes, cord, etc. So-called latent syphilis may exist as early as the end of the second year after the initial infection if improperly or inadequately treated. During this period the parasites may remain totally inactive in the tissues and excite no tissue reaction, or they may be mildly active and provocative of sufficient tissue reaction to afford a positive serological reaction.

As example of the former, the parasites may be sealed up in the scar of the healed primary lesion. This condition is often referred to as the chancre or redux, although trauma may result in breaking down this barrier of scar tissue and their gaining an entrance into the blood and lymph channels or by a gradual increase in number and virulence they may result in a local breakdown and produce a small miliary gumma. Clinically, however, this stage of the disease is usually characterized by absence of incriminating signs and symptoms, and is only accidentally discovered by a most careful routine examination, perhaps with some other disease in mind.

Primarily, a physician should always keep syphilis in mind as the most likely cause of vague, indefinitely described symptoms of the patient, always remembering that this disease is no respecter of race, creed, color, nationality, or social attainment.

The presence of old pigmented scars, usually smooth, most often found on the lower extremities, though sometimes found in other locations, the scars of healed gummas of the cranium. Again, the osseous system

may present lesions only discovered by a most careful examination, such as enlargement or tumefaction of the inner end of the clavicle, the saber tibia, or the scaphoid scapula, often overlooked by careless examiners.

X-ray of the long bones may bring to light inactive proliferations which give little subjective symptoms, or trauma may bring about activity in these bone lesions. The study of neuro-syphilis is most important, and involvement of this system may occur very early after infection; in fact, even before the secondary lesions of skin and mucous membrane. According to many good authorities, it would seem that frequently intensive and prolonged treatment may result in clinical cures along with reduction of blood Wassermann to negative during the first few months and its remaining so, never allowing it to become again positive. Of course, the spinal fluid should always be subjected to the four classical tests as early as the end of the first year, and every six months thereafter until at least three negative reports are received, as positive reports may be delayed for months or years.

To simplify our study of hidden syphilis, it might be wise to think of two stages, as suggested by Ravaut of St. Louis Hospital, Paris. First, the preclinical period, which is purely biological and does not manifest itself by any clinical sign, being only revealed by lumbar puncture. This period starts with the first meningo-vascular lesion produced by the spirochetes, its course is often insidious, prolonged, and results in quiet degeneration and final destruction without any external manifestations of disease until late clinical symptoms make their appearance. After this follows the clinical period, and it is only now that neuro-syphilis may be diagnosed clinically.

Remember that hidden syphilis may be either of the acquired or the congenital type. Consultation with a capable eye, cardio-vascular or neurological expert is often imperative, and often discloses changes which are pathognomonic of syphilis.

Syphilis is primarily a disease of the vascular system, later extension to the skin joints, internal organs, bones and nervous system may occur. In fact, no organ of the body is immune to its ravages. Its essential pathology is the same in the chancre where a plexus of vesicles show infiltration with cells arising (in situ) through infiltration. On cross section these vesicles show the characteristic concentric thickening and infiltration. All of these changes are shown in the late lesions even to the smallest perivascular infiltration.

Postmortem examination of the meninges

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may disclose focal thickening, fibrosis in old syphilitics as a result of the latency of this disease, where formerly gummatous changes were thought necessary to a positive diagnosis. The hearts of practically all latent male syphilitics show latent changes varying from a few minute microscopical areas of increased stroma nuclei, plasma cells and lymphocyte infiltration to more diffuse areas of interstitial myocarditis. These lesions are usually intermuscular rather than perivascular, and are fairly rare in the female. Recently on autopsy of fifty hearts of paretics, all showed latent myocardial lesions. Rheumatic heart is a most common clinical diagnosis of the cardiologist in the face of no valvular changes. Spirochetes are very frequently found in these infiltrations, and cardiac death is the most frequent form in the latent syphilitic, in reality an insufficiency rather than a degeneration.

Aortic changes are practically always present in the male, and in a majority of females. These changes are rarely apparent on inspection, but microscopically show themselves in the form of perivascular infiltration along the vasa vasorum. These perivascular lymphocyte and plasma cell infiltrations are always more marked in the adventitia or the aorta. There is found the same coat-sleeve changes in the nutrient arterioles as in the primary chancre, resulting in the obliteration of these minute vessels through a progressive, slow infarction or fibrosis of the intima and medial coats. These identical vascular changes are frequently found in the liver, pancreas, and adrenal glands. It is most important to remember that the testes of all latent syphilitics show sooner or later evidence of specific interstitial orchitis, as evidenced by atrophy of the germinal epithelia and hyaline fibrosis of the basic membrane of the seminiferous tubules. This insidious process may result in atrophy and hyaline degeneration of these organs, or normal size and consistency may be present. Latent syphilis produces a permanent loss of spermatogenic function in a great majority of cases, associated with a premature loss of sexual power and desire.

Latent lesions of the prostate and ovaries are rare. In congenital syphilis large numbers of spirochetes may be found in these organs without accompanying lesions, while on the other hand lesions containing spirochetes have been found in the cervix, uterine wall, and broad ligament. The Wasserman test, so valuable in early syphilis, is rarely positive in adult hereditary syphilis. The high arch palate, harelip, scaphoid scapula, short arms, hyper-plastic teeth or a general inferiority should suggest this disease. Eye lesions

which are most characteristic of syphilis are Argyle-Robertson pupil reacting to convergence, but not to light, a symptom of tabes and parietic dementia, and may precede these diseases by many years. These conditions may also be due to an alcoholic neuritis. Interstitial and parenchymatous keratitis probably account for 65 or 70 per cent of these cases in hereditary, and 10 per cent in acquired types, most frequently appearing between the ages of five and fifteen years, occasionally as early as the third year and rarely after the thirteenth year. Choroiditis often accompanies interstitial keratitis, and these children often present a remarkable combination of defects, such as dwarfed statue, coarse, flabby skin, and sunken nasal bridge, with scars at the angles of the mouth and nose, Hutchinson teeth, deafness, chronic periostitis, synovitis of the knee joint, and chronic indurated lymphatic glands.

Interstitial keratitis of the acquired type contrasts in that it is usually a late secondary or tertiary lesion appearing between the twentieth and fiftieth year, and is more amenable to treatment, more typical, and frequently accompanied by other symptoms. Differential diagnosis from tuberculosis is necessary. Scleritis due to syphilis, which presents a chronic course, very painful unaccompanied by secretion is frequently diagnosed as iritis or conjunctivitis due to other causes. While iritis is an early manifestation of syphilis, appearing between the second and ninth month, occasionally delayed to the eighteenth month, it may also appear as a late manifestation, either as a primary iritis or as a gumma of the iris. Retinitis in its various forms, including the types with exudate, as well as those with hemorrhages and degenerative changes, may be found in both the acquired and congenital types.

A rather common syphilitic ocular lesion is a paralysis of one or more of the extrinsic muscles of the eyeball. Late statistics would indicate from 60 per cent to 70 per cent of the cases of ocular muscular paralysis as due to syphilis, and while generally a late manifestation, it may appear as early as the sixth month after the primary infection, particularly in the form of ptosis. Rarely paralysis of the ocular muscles results from hereditary syphilis. The third nerve is not often affected by syphilis, while the sixth seems to be most often due to toxemias, such as those accompanying rheumatism, influenza and diabetes. Paralysis of the ciliary muscles the chief symptom of which is loss of accommodation, either complete or partial, is occasionally due to acquired syphilis, but rarely to the inherited type.

## TREATMENT

The necessary basis for a correct handling of these cases resolves itself into a most thorough physical examination, together with a complete laboratory examination of both blood and spinal fluid. Eye fundus examination, thorough neurological tests to indicate the active status of the disease is imperative. If latency can be thoroughly established by the absence of active lesions, evidence of former activity, as shown by the presence of old scars and extinct processes or a persistent positive blood reaction, then the question arises whether it is wiser not to treat than to treat. If active lesions be present in an early syphilis, which is transmissible, or even in a latent one which may become so, the decision to treat becomes obligatory. History of previous treatment plays an important part in our decision to treat, as too little or occasionally too much treatment should be considered. Since recurrences in both vascular and nervous systems are fairly common, thorough examinations should be frequently made to prevent precarious involvement. Thorough examinations of all mucous membranes, including the anus and genitalia, as well as skin surfaces of scalp, palms and soles are necessary.

Spinal fluid examination is more important than neurological tests, as early involvement is more invariably apparent, often long before the latter gives one a clue. Search for syphilitic infection should not be confined to the patient alone; parents and offspring should command our attention, especially in women patients. History of miscarriages is most important, as well as complaint of numerous vague symptoms and pain which cannot be ascribed to other causes. Marital history should be well looked into, as the wife as well as the husband of a parietic or tabetic frequently show similar involvement. No single examination should be considered adequate in arriving at a definite conclusion as to the absence of disease. Age and time factors should always be considered from a social aspect as well as that of the patient. Infections of long standing in persons of 50 to 60 years of age which show little or no activity demand little or no treatment, and may be left to the defense of their own defensive mechanism. On the other hand, recently acquired infection in these late years may be subjected to just as strenuous treatment as the young. Latency most often occurs between the ages of 30 to 40 years, and treatment is often indicated as one's defensive mechanism, being especially strong at this time, may be used up and years of high productivity be sacrificed to late recurrence. It is most necessary to decide whether one is

dealing with an active process or a residuum, as there could be no object in treatment simply for a scar, fixed pupil, or lost knee jerk. While, on the other hand, if inflammation was present in the scar treatment might be indicated.

Corneal vascularization in interstitial keratitis offers little encouragement for treatment, but if activity be present in the form of a punctate infiltrate the response to treatment may be surprising. Decision in this case should rest with the eye specialist. Treatment of painful symptoms rather than the disease primarily may be indicated in lightning pains and headache, recent eighth nerve deafness, retrobulbar neuritis and constitutional subnormality without localizing signs. When a decision for treatment is made in these cases fairly intensive modern standards should be inaugurated at once and continued over a period of one to two years. Perhaps an average of three, six to eight courses of injections of arsphenamine over a period of eighteen months, with a series of forty mercury inunctions between each course of injections, followed by a rest period of thirty days before and after each mercurial course. There seems to be much discussion as to the wisdom of administering arsphenamine in the presence of heart, vascular, kidney and liver involvements. It would seem that fairly frequently repeated small doses is consistent with good therapy, especially if active syphilitic lesions are present in these organs—certainly resolution is preferred to necrosis and resultant scar formations; aneurisms, of course, being excepted.

From many years' observation of thousands of cases at the Louisville City Hospital it has been our custom to treat such cases guardedly, and very few deaths could be ascribed to its use. Frequently it becomes necessary to build up a patient's general resistance, especially by tonics of iron and arsenic intramuscular, before beginning anti-luetic treatment, and occasionally during periods of anti-luetic treatment this is indicated. Since our object in the treatment of any disease is to give our patients relief from painful symptoms, restore a sense of good feeling and confidence, in brief, unless the patient takes to treatment kindly, showing improvement with perhaps a gain in weight, it becomes necessary to discontinue all treatment for short periods, with the idea of giving one's defensive mechanism a chance rather than inhibiting it by too much interference.

Among the majority of imminent syphilologists, Salvarsan (606) still holds first place, with soluble mercury and mercurial inunctions next, although bismuth "soluble" is



fast gaining ground as a remedy. In neurosyphilis, especially in tabes, malarial, inoculations are gaining in favor, in paresis to a lesser extent. Salvarsan is a dangerous drug in brain syphilis and frequently causes lighting up of old foci with disastrous results; in short, treatment of latent lesions should be well considered before begun, especially in those past fifty years of age, as frequently much damage to vital organs and tissues already exists which cannot be repaired. The maxim "Do not awake a sleeping lion" should always bear food for thought.

## SECONDARY ANEMIAS OF CHILDHOOD\*

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Anemias are usually classified as primary, the causes of which are not known and, secondary, the causes of which are known. Another classification based on etiology which seems more logical and which is being more generally accepted is: 1. Anemias due to blood loss. 2. Anemias due to blood destruction within the body. 3. Anemias due to deficient blood formation.

All types of anemias are found in childhood. Some, such as primary pernicious anemia and the chronic leukemias, which are fairly common in adult life, are so rare as to be almost medical curiosities. It will be interesting to take the above classification as a guide and consider the more common kinds of anemia found in infancy and childhood.

1. Anemias due to blood loss. These, of course, are caused by hemorrhage, acute or chronic. Hemorrhagic disease of the new born and thrombopenic purpura are examples of acute hemorrhage, while acute nephritis, dysentery and scurvy represent more subacute and prolonged bleeding. Hemorrhoids and gastric and duodenal ulcers and gastrointestinal malignancy, which are such common causes of persistent bleeding in adults, are almost unknown in childhood.

2. Anemias due to blood destruction within the body. Examples are congenital hemolytic jaundice and splenic anemia (Banti's disease); lead poisoning, seen occasionally in infancy where a baby has chewed the paint from its crib; acute infections, especially with the streptococcus; acute arthritis, especially when associated with acute endocarditis; malaria.

3. Anemias due to deficient blood formation. It is manifestly impossible to separate definitely anemias due to blood destruction

and these due to deficient blood formation because in most of the diseases both processes are involved. However, in the following conditions deficient blood formation plays the predominant role. Tuberculosis and syphilis; chronic gastro-intestinal indigestion and improper feeding; prolonged infections, such as pyelitis, otitis media, cervical adenitis, bronchopneumonia, empyema or whooping cough; prematurity. It will readily be seen that this group comprises by far the largest number of cases.

The blood picture in anemia depends upon the bone marrow response to the etiological agent. The bone marrow response of a healthy individual to a single large hemorrhage consists of an outpouring of all the cells which are found in the marrow, that is, platelets, polymorphonuclear leucocytes and red cells. The leucocytes are the younger forms giving a left shift to the Schilling scale and an increase up to 20,000 in the total count, and the red cells are the immature forms, such as normoblasts, reticulocytes, basic staining cells and cells of different sizes. This change is at its height in about ten days and the blood is back to normal in about thirty days. With small repeated hemorrhages, however, the bone marrow response is much less active, the leucocytosis is less pronounced or not present and the number of immature red cells is less. The most marked reduction is in the hemoglobin, which gives the red cells a pale washed-out appearance. In long continued cases such as scurvy or dysentery, the bone marrow may become exhausted and the leucocytes and platelets become diminished in number and the immature red cells disappear from the circulation. These are severe cases and require heroic measures to save the patient. However, as we said above, the great majority of cases of anemia that we encounter are caused by deficient blood formation and are not associated with blood loss and to little extent with blood destruction. The picture therefore does not show leucocytosis or immature red cells, but simply diminution of the red count and hemoglobin content, the latter in more marked degree than the former.

The most common causes of anemia in infancy are nutritional disturbances, chronic infections and prematurity. All three of these conditions are associated with deficient blood formation. Nutritional disturbances may be caused by improper feeding of chronic gastro-intestinal indigestion. The most common feeding error leading to anemia is giving a diet without sufficient iron in it. Milk and cereals contain very little iron, so that a baby who receives a diet consisting largely of these

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foods will certainly become anemic. All babies should receive a liberal supply of iron-containing food from the fourth month on to prevent anemia. The simplest iron-containing food is strained meat and vegetable soup. It is obvious that prolonged gastro-intestinal indigestion or dysentery will so deplete the bone marrow as to produce marked anemia. Premature babies always become anemic in spite of the most vigorous efforts to prevent it, and iron in the form of inorganic iron salts and iron-containing foods should be used liberally to control it as far as possible. Prolonged infections always produce anemia and it is impossible to bring the blood up to normal while the infection is active.

In the treatment of anemia new methods have been developed in the past few years and old ones are being less used. We believe that rest in bed and a balanced diet, with abundance of iron-containing foods such as red meats, green vegetables and fruits or extracts of these for infants, constitute the basic principle of treatment. Fresh air and plenty of sunlight or ultra-violet light are essential.

Of the new drugs, copper holds the limelight at the present time. Hart, Steenbock and their colleagues in 1928 discovered in their feeding experiments on rats that if the animals were fed anemia-producing diets and then iron salts of high purity were given to combat the anemia, that the iron was not effective. However, if the iron were given, as the ash of dried lettuce or yellow corn or beef liver, it was very potent in restoring the hemoglobin of the blood stream. Analysis of these substances revealed the fact that they all contained small but appreciable amounts of copper. Since that time the literature has been full of reports of animal experiments and human case reports where small amounts of copper in combination with iron have been used to combat anemia. The subject is to new yet to pass judgment upon, but the consensus of opinion at present is in favor of copper. The amount is apparently very small, only a few milligrams a day, so that its action must be similar in some ways to the vitamins, and it probably assists in the absorption of iron.

Whipple and his associates in 1925, while working on artificially produced anemia in dogs, discovered that liver, kidney and chicken gizzard were more effective than anything else in combating anemia. Since that time the use of liver in the treatment of pernicious anemia has startled the medical world with its brilliant results. While less effective in the treatment of secondary anemia, liver is still probably our most potent weapon. Liver contains considerable

amounts of iron and appreciable amounts of copper. Whether its value lies in one or both of these metals or something else besides is not known at the present time. Liver extracts while very effective in treating pernicious anemia do not seem to be as effective in secondary anemia as whole liver.

Inorganic iron salts, especially the soluble iron and ammonium citrate, still hold a high place in the treatment of secondary anemia. Large doses are necessary to get results. Five grains of iron and ammonium citrate three times a day is not too much for a three or four-year-old child. Intramuscular injections of iron are probably no more effective than administration by mouth and the pain and fright caused by the treatments, make them inadvisable. Organic iron preparations have no advantage over inorganic iron salts, and because of their uncertain dosage are less desirable.

Transfusions of blood give brilliant results in some cases and in others are merely of temporary benefit. I can think of no more satisfactory results in the practice of pediatrics than those obtained in three cases of prolonged dysentery where the patients were almost moribund and who responded promptly to a series of two or three transfusions. Repeated small transfusions are much more effective in stimulating the bone marrow than large ones; in fact, large transfusions may inhibit bone marrow activity. Ten or 15 c.c of blood per pound of body weight is sufficient for one transfusion.

Arsenic is backed by the tradition of many years of widespread use. Its value is empirical. On experimented animals it has little or no effect. However, it is hard to believe that a drug that has been used so long is without value. It is supposed to stimulate bone marrow activity.

#### SUMMARY

1. Anemias may be classified as those caused by blood loss, blood destruction and deficient blood formation.
2. Iron and liver and iron-containing foods are of great value in the treatment of secondary anemia.
3. Copper is probably of value.
4. Transfusions of blood are of great value in selected cases.
5. Arsenic is probably of little value.



## GERMS\*

JOSEPHUS MARTIN, M. D.

## Cynthiana.

Of the story and development of the science of bacteriology much has been expressed, but the future must unfold much more before the subject will be anything like exhausted.

We do know that there was, for a long time, a blind and desperate struggle with an unseen and powerful foe.

This foe, or what we now know as germs was then known by the havoc it wrought. Its power was measured by the dead bodies of its victims. Groping blindly, it was suspected that it sometimes infected food and water. It finally became known that sufferers from certain diseases were a source of danger to others. In other words, it seemed fairly reasonable that some diseases were contagious and should be avoided, but why and how no one knew.

The Bible speaks of leprosy as an unclean disease. The leper was avoided and segregated. No one seemed to know why.

The older writers, Hippocrates, though he had remarkable skill in diagnosis, practiced auscultation and taught the doctrine of "critical days," did not know why.

Galen, who wrote eighty-three treatises on medicine, was a recognized anatomist and physiologist and whose authority in medicine was supreme until the middle of the sixteenth century, did not know.

So we might mention other ancient, medieval and modern writers, all in the same category with respect to the germ theory.

It was not until 1680 that even a hint of the real cause of disease was suspected. In that year a Dutchman named Leenwenhoek discovered or rather produced a lens of such power that through it could be seen bacteria, but they were not connected with disease for nearly two centuries.

Then Dr. Oliver Wendell Holmes, in 1843, suspected the cause of puerperal fever and also suspected its contagiousness and so expressed himself. For this he was severely criticized by his fellow practitioners.

In 1847 Semmelweis of Vienna forged a link in the chain of evidence. He noted a high rate of mortality for puerperal fever in a hospital ward, the attendants of which came direct from the dissection room.

Observing the similarity between puerperal fever and a case of pyemia, caused by a dissection wound, he suspected their identity. Cleanliness with soap and water and chlorine solution cured the trouble. The results were "immediate and astonishing."

It was really the study of fermentation that the connection of bacteria with disease was finally demonstrated. With this study the names of Pasteur and Lister, 1867-1869, were closely linked and the "father of antiseptic surgery" made a name.

Although a man by the name of Davaine in 1863 produced anthrax in animals by injecting them with blood from animals having the disease, it was not until the late seventies that Pasteur reproduced anthrax in animals from a pure culture of anthrax bacilli grown outside of the body, thus proving Koch's four rules, which he held must be complied with to prove that any bacteria was the cause of any particular disease, several years before Koch himself formulated these rules.

Then comes a long line of germ discoverers and germ workers. Koch discovered the bacillus tuberculosis in 1882. Although Jenner, 100 years before, had produced immunity to smallpox.

Although in 1883 and 1884 Klebs and Loefler separated diphtheria bacilli from other bacteria and grew them in pure culture, it was not until 1893 that Behring gave diphtheria antitoxin to the world.

Flexner's name is closely associated with cerebro-spinal meningitis, although Weichselbaum discovered the micrococcus in 1887, and Jaeger and Seheuer in 1895, drew special attention to the etiological relationship of the organism to the epidemic form of cerebro-spinal meningitis.

Pneumonia and Frankel go together. Koch and cholera. Bubonic plague and Kitassato. Typhoid fever and Eberth. Gonorrhoea and leprosy are associated with the names of Neisser, Bordet, Gengou, whooping cough, etc. So much for bacterial germs. The protozoan germs causing malaria and amoebic dysentery are known: possibly yellow fever. In fact, with the exception of mumps, measles, chickenpox and infantile paralysis, the germs that cause most of the diseases in this country, with which we have to contend, are known.

We, today, are not groping in the blackness of night as did those who practiced before the time of Dr. Oliver Wendell Holmes, Louis Pasteur and Lord Lister.

Now, what has been gained? The span of life has been very considerably lengthened. Within the past thirty years the average life has been brought from 32 years to 53 years, in Kentucky; in the United States, from 32 to 58 years.

Germ discovery has made it possible to diagnose correctly and to treat diseases with a certain degree of accuracy and on a scientific basis.

While measures for the prevention of dis-

\*Read before the Harrison County Medical Society, March 2, 1931.

eases have for a number of years been encouraged and promoted by physicians and public health officials, it is only since our knowledge of germs has become firmly established that protection against communicable diseases has been put on a scientific basis.

The public has become wise. Many are asking to be immunized against typhoid fever and some are wanting both the Schick and the Dick tests.

I can well remember when diphtheria was the scourge of childhood. Only a few years after Behring produced diphtheria antitoxin the death rate from this disease was reduced in a marked degree.

Now the Schick test, the use of toxin—antitoxin and typhoid—has apparently, in some states, eliminated about 90 per cent of the risk of infection.

In the city of Auburn, N. Y., where the highest percentage of children had been immunized, the death rate fell from the peak of 48.5 per 100,000 in 1920, to zero in 1925 and 1926.

It seems to be the prevalent opinion that the Klebs-Loeffler will soon be emasculated, the Eberth bacillus denatured, the Neisser quarantined, the tetanus buried under the soil from which it springs, the streptococcus, so far as it relates to scarlet fever, under control, and the antics of many others curtailed.

This may or may not usher in the millennium. Who is able to say?

It might be well to mention one other germ. This germ is in a class to itself, all alone. It may be either a bacteria, a protozoa or a hybrid. It is supposed to be related to all other germs. It is the ego germ, the slippery or elusive germs, very solicitous of the health of other professional germs friends, offering services and soliciting "trade," the unprofessional fellow, often working under cover of society germs, where and when possible. Now you see it, now you don't, because it operates on a sliding scale. It will grow in symbiosis, but rarely, because of selfishness. When it is symbiotic the host generally suffers financially, in case he does not become moribund "in transit." This germ is a fee-splitter, always taking the big end even from its symbiotic friend. This germ is most always aerobic. It wants all "out doors," even the oxygen that rightfully belongs to other germs, it appropriates to its own use; occasionally anaerobic, for the purpose of shelter in a time of storm. This germ is both a facultative aerobic and a facultative anaerobic in season. This germ is pathogenic under any and all circumstances, destructive rather than constructive. It is both

a saprophyte and a parasite, growing on dead organic matter as well as on living tissues, a sort of cross between a turkey buzzard and a hyena. It prefers a culture media that will enable it to grow most luxuriantly, so that it may overshadow all other germs in outward appearance.

There is no known remedy for this kind. Nothing has ever been discovered that will retard the growth and development of this germ. It is always "rearing to go." Bacterins, bacterial vaccines, sera, toxins and anti-toxins do no good. Unless the new principle of bacteriophage therapy (the local Medical Society), which is said to act by forcing germs from the virulent into the comparative non-virulent phase of life cycle, can be used successfully, the problem of controlling this germ or its counterpart in the medical profession, is hopeless, for the present.

A physician is a doctor, but not every doctor can be classed as a physician.

## ARE DOCTORS RESPONSIBLE FOR HIGH COST OF ILLNESS?\*

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Clinton.

In recent years the interest in high cost of medical care has reached fever heat. This has been stimulated chiefly by the feeling among the laity that bills mount up rapidly during illness that there is a sudden heavy burden. This burden rests chiefly on the pocketbook where the world at large is most sensitive. Those who have felt the burden and pinch have made themselves so vocal that at last real studies are being made to find the facts. Committees are now making investigations of private practice, public health and institutions of special interest. Conclusions will be drawn from these reports, which will be of great interest to the doctors, institutions and the public alike.

In the meantime, it may be of interest to us to study the problems ourselves, and if possible, find the WHY of the high cost of medical care.

When one is sick to whom do they pay their money? To the doctor, the hospital, the nurse and the drug, or supply house. Except for the drugs and supplies, which are used up from day to day with no residue, they pay for service only. The result of all this expense is either death, or invalidism, or the restoration to health. The psychological reaction on the part of the average man is that for restoration to health. He has an unfavorable reaction to the disease that disturbs

\*Retiring President's Address Southwestern Kentucky Medical Society, Paducah.



his routine of life and pleasure. "Then to have to pay for service, which gives him nothing tangible, is often the height of indignity.

But the money must be paid. Upon what basis can these service agencies charge a fee? And why the particular fee charged? These should be regulated by the cost under the economic items of capital invested and overhead. Since service is the commodity dealt in, it has no additional value from year to year, except physicians who do post graduate work, that they may render more efficient service to their patients. Supplies are a relatively small item and may be considered with overhead.

Let us now examine the doctor's status with reference to these items. The medical student invests his capital in an education. What does he pay for it? All accredited medical colleges require at least two years, premedical collegiate course after a four-year high school course, or its equivalent. Tuition and living expenses vary widely, but \$1,000 annually is not an extravagant figure and this in a state university, where tuition fees are not more than one-fourth of what they are in the larger schools. The premedical training then costs at the very least \$2,000, to which must be added \$4,000 for medical training. Some states require a year internship in an approved hospital before permitting the doctor to practice medicine. Where not required, many men serve as internes for their own training and improvement. Money so far spent amounts to \$6,500 or more. Add to this the time spent, which is equivalent to money, and see what we have. Anyone with enough intelligence to successfully practice medicine is certainly capable of earning a salary of at least \$1,500 a year, which he could have been drawing the years he has spent preparing himself for his profession. Add this item and we now have an investment of something like \$15,000.

He is now ready to begin his life work and spend more money. To equip an office depends on what line of work he expects to do. To equip his office with modern appliances, such as X-ray, electro-cardiograph and other necessary instruments in the library and office furniture, means quite a sum. Then comes his car and its upkeep, which is no small item. Office help must also be considered.

The doctor who keeps up with the rapid advancement of his profession must necessarily do some post graduate work, which takes him away, and time lost must be figured besides the cost of the work. What business, with that much capital invested,

would pay as little as the doctor derives from his?

When he comes to the time he must retire, how many have accumulated sufficient amount of this world's goods to support him and his family in their declining years, and we have no stock of anything we can convert into cash.

Then, certainly, we are not responsible for the high cost of illness.

## PATHOGENESIS OF EXOPHTHALMIC GOITRE\*

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Relation of Thyroid to Graves' Disease: The etiological relationship of the thyroid to Graves' disease has never been accorded unanimous approval, many claiming the gland is only a link in the chain of a complicated disease. Hoover<sup>1</sup>, as late as 1929 wrote "the excessive flow of secretion from a hyperplastic thyroid into the circulation has never been proved to be true in Graves' disease." Bram<sup>2</sup> goes further and says, "a subject of Graves' disease is no more a victim of goiter than is a sufferer of typhoid fever one of splenomegaly." Hyman and Kessel<sup>3</sup> think that "exophthalmic goitre is a complicated disease whose origin is obscure, which may be thyrogenic, but which probably is not," and Solis-Cohen continues to hold to the neurogenic theory of the origin of Graves' disease.

On the other hand, Richter<sup>4</sup> says "the immediate source of the clinical syndrome called exophthalmic goitre lies entirely within the thyroid gland. Its removal is incompatible with the continued existence of the disease in its various forms." Crile<sup>5</sup> considers "in the case of hyperthyroidism, as in that of appendicitis, the indication for operation is diagnosis."

Classification: The sheer variability of the clinical features of Graves' disease has given some speciousness for the numerous classifications. The major result, however, has been confusion. The confusion has not been confined to clinicians, but troubles pathologists as well. Have we been separating a single disease into several when they should have been classed merely as varieties? Or is the grouping in separate entities warranted in the light of present-day knowledge of the pathology, the clinical course, and the effects of treatment? Should the terms toxic adenoma, adenomatous goitre, thyrotoxicosis, hyperthyroidism, dysthyroidism, tachycardia

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strumosa, Basedow's disease, hyperplastic toxic goitre, exophthalmic goitre be considered merely as synonyms? Is there ground for considering some of these as a condition characterized by hypersecretion and certain of the others one of dysfunction? Stripped of verbiage the simple question may be asked, are toxic adenomata and Graves' disease one and the same disease, or should they be recognized as separate clinical and pathological entities? Plummer<sup>6</sup> considers exophthalmic goitre and toxic adenomatous goitre as separate clinical entities. He does not doubt that there may be a common primary etiological factor. Graham<sup>7</sup> thinks that exophthalmic goitre and toxic adenoma are merely clinical variations of a single disease and insists that there is no anatomic histologic alteration in the thyroid that is necessarily pathognomonic for exophthalmic goitre or toxic adenoma.

Marine,<sup>8</sup> laboratory student, no longer than November, 1930, suggests that Graves' disease should be the term used to indicate the clinical condition and that it be divided in acute and chronic forms, each subdivided into complete and incomplete varieties. Thus, he argues, would toxic adenoma, thyrotoxicosis and "a host of other more or less indefinite terms" be eliminated. This would, indeed, simplify the whole question; would permit expression in a common language, but would the truth be more nearly divined by such simplicity?

Even the historians do not agree concerning this disease. Graves<sup>9</sup> wrote his description in 1835, followed in 1840 by an amplification of Basedow<sup>10</sup>. The names of these observers have become a part of thyroid disease nomenclature and the profession, generally, credits Graves as the pioneer observer. And yet Sir Humphrey Rolleston<sup>11</sup> claims that Caleb Parry<sup>12</sup> wrote a description of exophthalmic goitre in 1786 "so complete and original that it more justly entitles him to the honor of its discovery than Flajani (1800) Graves (1835) or Basedow (1840)." Fielding H. Garrison<sup>13</sup> in *History of Medicine* thinks likewise.

Parry, who likewise described toxic adenoma of the thyroid made no distinction between the two diseases, since he did not consider the thyroid gland in the role of a causative factor. He considered the enlarged gland merely a helpful protective reaction and believed the seat of the disease to be in the brain.

**Graves' Constitution:** The description of Graves' disease in present-day literature certainly contemplates a cosmopolitan syndrome. Practically all of the organs and tissues of the body have been brought into the clinical

picture, behind which for sometime certain European students have essayed to visualize not merely a human being ill, but rather a pathological constitution, a recognizable type of individual. Warthin<sup>14</sup>, in the United States, a leading proponent of this view, has described in detail this background and designates it the Graves constitution. In summarizing the evidences of this constitution he phrases them as "Juvenile morphology and rapid functional reaction." Scrutinizing the detailed description of this so-called Graves' constitution one is impressed by the singularly close resemblance it bears to the clinical picture described by Eppinger and Hess<sup>15</sup> as a sympathicotonia. I have used this grouping together with its opposite, Vagotonia, in classifying patients; the former in its relation to goitre and the latter in studying peptic ulcer<sup>16</sup>. I agree that the larger per cent of the thyroid cases I have studied belonged to the sympathicotonic or as Warthin terms it the Graves constitution group, but I also have found them in the vagotonic group. I confess I can visualize the Graves constitution of today with its distinguished backers as but an extension of the constitutional, neuropathic or sympathetic theory of 1848 offered to explain the cause of the disease.

**Pathology:** Pathologists may be divided into three groups based on their opinion as to the significance of changes in the thyroid in Graves' disease; those holding the changes are constant and specific, those believing they are neither constant nor specific and an intermediate group that thinks they are constant, but not specific. The difference seems to hinge on the hyperplasia that occurs sooner or later in every case. But they do not agree as to whether the hyperplasia differs in any essential from that occurring in other conditions. Whenever the iodine content of the thyroid falls below 0.1 per cent, there results an increased blood supply, a decrease in colloid and a transition from cuboidal to columnar epithelium. This is hypertrophy. If this progresses to a cell proliferation then hyperplasia is established. Hyperplasia may develop on a normal gland basis or on a colloid gland basis. It is called primary hyperplasia in the first and a secondary hyperplasia in the second instance. In both it begins as a compensatory or developmental process, merges into an involution or physiological recovery stage, where it is called a colloid goitre, or into an atrophic stage. This atrophy appears to be a true exhaustion atrophy occurring in spite of the effort of the gland to regenerate, or even because of it when there is insufficient periods of physiological rest.



That this kind of change has been mistaken for carcinoma by not a few pathologists would warrant the clinician assuming the same attitude toward the pathologist's report that he shows to other laboratory study; the *ipse dixit* of the pathologist is not always final.

The interpretation of secondary hyperplasia by a pathologist is even more difficult than that encountered in the primary form. This is due to wider range of morphological changes and the more complicated life history. The secondary hyperplasia is rarely uniform through out the gland; it usually is in the primary type. This is because the thyroid is subject, so commonly, to hemorrhages, cyst formation and other degenerative changes, as well as, the effects of injury, pregnancy, changes in locality, intercurrent disease, treatment and a score of other factors. The chief reason for the absence of uniform findings in the secondary hyperplasia is, quite likely, the variation in blood supply. It is best preserved in the subcapsular zone and it is in this area that the hyperplasia is greatest. In the central portion, furthest removed from adequate blood vessels, alveoli are usually found that have failed to take on hyperplastic activity. Marine<sup>17</sup> insists that the hyperplasia seen in Graves' disease is not a specific finding for Graves' disease, though a constant one. Neither does he believe that the islands of hyperplastic tissue occurring in long standing cases need other explanation than that "the thyroid being a cystic organ, different groups of follicles stand in different relations to the blood supply," and those with an adequate supply will, necessarily, regenerate earlier and more completely.

Warthin<sup>14</sup> believes that the "constant presence of hyperplastic lymph nodes with large germinal centers" are the most striking pathological features of the Graves' disease thyroid. He further asserts that this lymphoid hyperplasia is the most constant histological finding in the Graves' disease thyroid and reports a case where at an initial attack that part of the gland removed at operation showed hyperplastic lymph nodes and fifteen years later the primitive lymph nodes were hyperplastic on further resection following a recurrence of the disease clinically. He reports another case of clinical Graves' disease having seven partial thyroidectomies covering a period of eighteen years each resection showing the same pathological picture—marked lymphoid hyperplasia, degenerating fetal adenoma, abundant colloid and an absence of epithelial hypertrophy. Such observations have emboldened this veteran pathologist to utter the dictum—"There can

be, of course, no cure for any primary constitutional defect, the stigmata of the latter will persist, the constitutional defect of the thymic-lymphatic constitution underlies every case of exophthalmic goitre and toxic adenoma. Unless carried off one's feet by this emphatic enthusiasm one must pause and ask, Do exophthalmic goitre and toxic adenoma possess the same pathologic constitutional entity? Is it true that the thyroid is not all of the story and not even the primary pathogenic factor? Are Graves' disease and toxic adenoma pathologic reactions potentially present at birth by a constitutional anomaly? And, finally, is there no cure? In this war of pathologic roses Marine<sup>8</sup> enters the list denying that unless born to the purple one cannot acquire it. He offers his studies of the suprarenal cortex as controverting evidences. He believes that the normal hypertrophy of the suprarenal cortex during intra-uterine life is a factor in controlling the rate of tissue oxidation and that the increased heat production noted during the first two weeks of extrauterine life is permitted by the involution of this cortex overgrowth. Experimentally, he thinks, a symptom complex resembling Graves' disease can be produced by sublethal injury to the suprarenal cortex. He concludes that the suprarenal cortex and the sex glands produce an oxidizable substance which protects one from Graves' disease, its loss an important factor in causing it. A distinguished pathologist is again emphatic and enthusiastic. The clinician again asks, is Graves' disease a more fundamental disturbance than merely a disease of the thyroid? Does this fundamental disturbance lie in a deficiency of the suprarenal cortex and sex glands? Do the suprarenal cortex and sex glands exercise a control over tissue oxidation?

Hyperplasia of Lymphoblastic Tissues: Markham in 1858<sup>18</sup> noted hyperplasia of the thymus gland in Graves' disease. In Graves' disease under thirty years of age hyperplasia of the thymus is present in 75 per cent of the cases.

A relative lymphocytosis as high as 60 per cent is often seen. In Kocher's<sup>19</sup> time this finding was considered of much diagnostic value. He did not know that other conditions produced a lymphoblastic overgrowth. Addison's disease and status lymphaticus are two ready examples. The significance of hyperplasia of the thymus and other lymphoid structures has had interesting interpretations. Haeber and von Mikulicz abroad and Halstead at home thought favorably of the hypothesis that the thymus produced a toxic substance which caused many of the symptoms of Graves' disease and

practiced thymectomy. Experimentally it has been shown that thyroidectomy induces atrophy of the thymus; removal of the suprarenals results in regeneration of the thymus and evidences of status lymphaticus. In Graves' disease the suprarenals are reported uniformly small. Again, the clinician asks, "Is there an inherited or congenital constitutionalanlage accounting for the early cases? Are the cases developing at or near menopause born free of a predisposition but acquire the disease?"

Cases of lymphatic hyperplasia made up of lymphoblasts with or without mitotic figures have come to be a matter of common recognition, but the experiment of doing lymphocyte count of the blood, then massaging the thyroid to determine the increase in the lymphocytes following such a massage is a relatively novel procedure. Harsh<sup>20</sup> reports two cases in which this was done with an increase of 38% in the lymphocytes in one and of 5 in the other. He also did some basal metabolism studies before and after massage of the thyroid which might be considered even more interesting. In one case this was increased from 46 plus to 80 plus six hours after a 15 minute massage and which remained elevated over a period of 36 hours. The value of this observation, however, is materially lessened by the experiments with the other two cases he reports in which no increase was observed in the basal rate.

Increased or altered Secretion: The clinician has been confused by the differences in findings in the laboratory, as well as their interpretation. He is bewildered in his endeavor to determine whether the thyroid in Graves' disease manufactures an excessive secretion or an altered one. The literature presents conflicting data. Wilson and Kendall<sup>21</sup> claim they found less than one-fifteenth as much thyroxin in the blood of persons with Graves' disease than they found in the blood of normals. Try to harmonize this statement with Hunt's<sup>22</sup> report that the Aceto Nitril test for thyroid secretion was positive in blood of Graves' disease persons but not in normals. Again it is well known that thyroid preparations vary in potency and it seems this variability depends on the iodine content of the glands. Yet Jolin and Wells<sup>23</sup> and Weir<sup>24</sup> and yet others all say the thyroid gland in Graves' disease has a low iodine content.

Feeding experiments in which thyroid glands from healthy animals were used have been done by many observers covering a period of many years. Gudernasch<sup>25</sup> in 1914 published his pioneer work in this field and all subsequent work was based on his methods. But few feeding experiments,

however, have been done in which glands removed from humans suffering from Graves' disease were used. Lenhart<sup>26</sup> tried this in 1915 and reported that healthy and toxic glands acted alike qualitatively. In 1922 Abderhalden and Seiffman<sup>27</sup> reported similar results.

In some feeding experiments with tadpoles Cooksey and Rosenblatt<sup>28</sup> undertook to determine any variation in metamorphosis when fed on normal food, normal human thyroid and exophthalmic goitre thyroid gland. Their work was, apparently, adequately controlled concerning such details as equality of iodine content in all three kinds of foods, the amount of food given daily, amount of thyroid used, etc. Their results seem to show that glands from clinically active, toxic goitre cases accelerated metamorphosis of the larva to a greater extent than those fed normal human thyroid gland while the latter speeded up the change over the normal food containing no thyroid gland, either healthy or diseased. They conclude that the thyroid gland of Graves' disease contains more active principle than normal human thyroids. They go further and state that it appears that the amount of this active principle is directly proportional to the clinical evidences of toxicity in the patients from whom the glands used were removed. If the conclusions be sound then the clinician must feel that hypersecretion in Graves' disease does obtain but does not help determine if the secretion be an altered one as well.

#### SUMMARY

The nature of Graves' disease is discussed. The differences of opinion concerning classification and pathology are analyzed.

The concept of a Graves' constitution is considered and attention called to its similarity to the neuropathic or sympathetic theory offered to explain Graves' disease eighty odd years ago.

Reference is made to interesting feeding experiments with human glands, normal and toxic.

The whole question of pathogenesis of Graves' disease is considered moot despite its relative frequency and long clinical recognition. Knowledge of its cause and the establishment of its pathology has not kept pace with its clinical recognition and its management.

#### BIBLIOGRAPHY

1. Hoover, C. F.: Does Hyperplasia Offer any Evidence for the Thyrogenesis of Graves Disease. *A. J. Med. Sc.*, CLXXIII:11, July, 1927.
2. Bram, Israel: The Prevention of Exophthalmic Goitre. *Endocrinology*, VII, May, 1923.
3. Hyman, H. T., and Kessel, L.: Studies of Exophthalmic Goitre and the Involuntary Nervous System. *J. A. M. A.*, LXXIX, 123, Oct. 7th, 1922; *Arch. Int. Med.*, XXXI, 433, March, 1923; *A. M. J. Med. Sc.*, CLXV: 513, April, 1923.



4. Richter, H. M.: Thyroidectomy; Its relation to the cure of Thyrotoxicosis. *J. A. M. A.*: LXXXVIII:888, March 19, 1927.
5. Crile, G. W.: Certain Problems in the Treatment with the Reduction of the Thyroid Gland. *J. A. M. A.*, LXXXIII:813, Sept. 3, 1924.
6. Plummer, Henry S.: *Trans. Assoc. Amer. Phys.* 183, 1916. Personal Communication Feb 22, 1931. Inter-relationship of Function of the Thyroid Gland. *J. A. M. A.*, LXXVII:243, July 23, 1921.
7. Graham, Allen: Exophthalmic Goitre and Toxic Adenoma. *J. A. M. A.*, LXXXVII:628, Aug. 28, 1926.
8. Marine, David: Studies on the Etiology of Goitre, including Graves' Disease. *Annals Int. Med.*, IV:423, Nov. 1930.
9. Graves, R. J.: *System of Clinical Medicine*, Dublin, 1835.
10. Basedow, K.: Exophthalmos durch Hypertrophie der Zellgewebe in der Augenhöhle. *Wchnschr. f. d. ges. Heilk.* Berlin, 194, 1840.
11. Rolleston, Sir Humphrey: Caleb Hillier Parry, M. D., *f. r. s. Ann. M. Hist.*, VII:205, 1925.
12. Parry, C. H.: *Elements of Pathology*, London, 1:187, 1815.
13. Garrison, Fielding, H.: *History of Medicine*, Philadelphia, W. B. Saunders Co., 1914.
14. Warthin, A. S.: The Constitutional Entity of Exophthalmic Goitre and so-called Toxic Adenoma. *Annals of Int. Med.*, II:553, December, 1928.
15. Eppinger and Hess: Die Vagatonie, *Trans. Hirschwald, Berlin*, 1910. Vagatonie, *Nerv. and Ment. Dis.* 1917, Monograph 20.
16. Virgil E. Simpson: Thyrotoxicosis and Associated Vagatonic and Sympathetic Syndromes. *The Amer. Jour. of Surg.* III:249, Sept. 1927.
17. Marine, David: Endocrinology and Metabolism. Page 269-297, D. Appleton & Co., New York, 1922.
18. Markham, W. O.: Affection of the heart with enlarged thyroid and thymus glands and prominence of the eyes. *J. Path. Soc., Lond.*, 1858, IX, 163-164.
19. Kocher, T.: Bluntuntersuchungen bei Morbus Basedowii. *Arch. f. klin. Chir.*, 1908, LXXVII, 131.
20. Harsh, W. T.: Structure of the Thyroid Gland in Toxic Goitre. *M. Clin. N. A.*, XXIII:501, 1929.
21. Wilson and Kendall: Relationship of Pathological Histology and Iodine Compounds of the Human Thyroid. *A. J. Med. Sc.*, CLI:79, 1916.
22. Hunt, Reid: Acetonitril Test for Thyroid and of Some Alteration of Metabolism. *Am. J. Physiol.*, LXIII: 257, 1923.
23. Jolin and Wells: *Chemical Pathology*, 604., Philadelphia, W. B. Saunders Co., 1920.
24. Weir, J. F.: Thyroxin and Tryptophane Content of the Diseased Thyroid Gland. *A. J. Med. Sc.*, CLXIX:860, 1925.
25. Gundernatsch, J. F.: Feeding Experiment on Tadpoles. *Am. J. Nat.*, XV: 431, 1914.
26. Lenhart, C. H.: The Influence on Tadpoles of Feeding Desiccated Thyroid Gland. *J. Exp. Med.*, XXII: 739, 1915.
27. Aberhalden and Seiffman: Wirkung, *Arch. f. d. ges. Physiol. Trans.* CXCV:167, 1922.
28. Cooksey, W. B., and Rosenblatt, M. S.: Thyroid Disease; and Experimental Study. *Arch. Int. Med.*, XLII:1, July, 1928.

## CERVICAL LACERATIONS AND INFECTIONS\*

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Lacerations of the cervix are so frequent after childbirth that the results of the injury are used as the commonest mode of ascertaining that a woman has borne children.

The degree of laceration in the cervix may vary from the slightest rent in the mucous membrane to a bilateral or stellate laceration, involving both walls of the cervix and extending beyond the internal os into the broad ligaments. The more serious lacerations are usually deepest on the left side and are associated, at the time of injury, with profuse bleeding.

Lacerations, per se, cause no symptoms, but subsequent vascular changes in the cervix and infections produce what may be regarded as associated symptoms.

The question immediately arises as to the proper time to care for the lacerations in order to prevent such sequelae. Briefly, the consensus of opinion is that deep lacerations which are associated with profuse bleeding should be repaired at the time of delivery and those that are of sufficient depth to cause possible future trouble and infection should be repaired six to eight weeks after the delivery. A great majority of lacerations may be adjusted by nature. If the cervix is examined at the time of delivery, it can readily be understood how futile the attempt would be to repair small lacerations at that time; indeed, with the miraculous changes in involution, the repairs would be fruitless.

However, to their harm, the need for early repair work is not sufficiently urged upon the patients, and in a great many instances, through their own lack of cooperation, it is impossible to impress upon them the importance of it. Lacerations are thereby permitted to develop into scar tissue, with associated circulatory changes and subsequent infections and sequelae.

Therefore, the subject of cervical lacerations resolves itself into a discussion of the treatment of the resulting chronic endocervicitis, and its complications.

The clinical features of chronic endocervicitis are more distinct than is usually recognized, and, with the possible exception of vaginal prolapse in its varying degrees, it is the most common cause of disturbance in the female pelvis. The fact that 98 per cent of the cervical carcinoma found are associated with or preceded by chronic endocervicitis indicates the gravity of the condition. Unfor-

**Radiotherapy in Cancer of Uterus**—In his general review on the subject, Donaldson states that in cases which were recognized in time and in which treatment was begun immediately, the patients remained completely cured. In the more advanced cases one obtains a remarkable temporary improvement. The patients gain in weight and state that they sever felt so healthy. But at the end of one and sometimes of two years they become pale, look toxic and complain frequently of swelling of the lower extremities. On examination the cervix and the vagina appear healthy, but deep in the pelvis one can feel a neoplasm, which ulcerates finally into the rectum, the bladder or the vagina and the patient dies from cachexia. The actual problem at present is to find means for preventing metastases in the lymph nodes and the deep structures of the pelvis.

\*Read before the Marion County Medical Society.

unately, in the lay mind the symptom complex is usually ascribed to "fallen or misplaced womb," "ovarian trouble" or "female trouble" and accepted lightly, though, if sufficient discomfort has occurred, the patient may have undergone varying and prolonged forms of treatment without definite improvement. Cases of chronic endocervicitis frequently go on unrelieved for years, due partly to ignorance, sometimes to incomplete pelvic examinations, and partly to the comparative insensibility of the cervix, with little consequent pain, until, as a result, the general health of the patient has been insidiously undermined.

In the past few years it has been interesting to note the trend in gynecology in three rather distinct ways:

(1) To palliative, as opposed to operative, treatment in all but active, progressive salpingitis.

(2) Acceptance and recognition of strains of organism from joints and serous surfaces in gynecological cases and the association of the pelvis as foci of infection.

(3) Recognition of the extent of distress and ill health that is caused by chronic infections of the cervix.

With this last mentioned trend in mind, let us consider the symptomatology, and also the treatment of chronic endocervicitis as carried out in the Gyn Dispensary of the Louisville City Hospital.

We know that over 93 per cent of women who have borne children have had damage done to the cervix, which probably will be followed by subsequent cervical infection. Uterine displacement and malposition are commonly associated with such injuries, and if the displacement does not in itself produce symptoms, it is not conducive to rapid healing.

The discussion here will be limited to those symptoms that are produced by endocervical infections. Such symptoms were ascertained from a group of patients who have had previous supravaginal hysterectomy, bilateral salpingectomy with suspension, or with the cervical infection as the predominant lesion in a group of nullipara, in whom there was no evidence or symptoms of adenexal disease. This group was selected in order to rule, out, if possible, any other source of the symptoms.

Symptoms: From the above mentioned selected group leucorrhea is the most common, and in most instances, the only pelvic complaint; a persistent, mucoid or thick creamy, irritating, purulent discharge, which if not the cause of physical, is the source of a great deal of mental distress. This discharge is cured by few, if any, local applications.

Pain: An indefinite, dull rather constant ache in the lower abdomen and pelvis is complained of, usually not referred, little relieved by lying down, and made worse with exercise.

Due to the accessibility of the cervix, it is easy to demonstrate the relationship between the lesion and the pain.

(1) The normal cervix is fairly mobile, but in cases of endocervicitis the motion is restricted.

(2) Displacement of the cervix produces pain similar to that complained of by the patient.

(3) Manipulation of the infected cervix at times gives reflex gastric symptoms.

(4) Speculum examination shows the characteristic large, swollen, oedematous everted lips of the cervix with granulation tissue about the external os and Nabothian cysts.

Bladder Symptoms: Are frequent and are usually reflex, probably due to sympathetic irritation. In many instances the urine is free from abnormal inflammatory elements and the patient suffers from frequency without burning. Later, with extension into the bladder walls, the inflammatory elements appear.

Rectal Discomfort: The pain that these patients have in the rectum in association with bowel movements can be reproduced by traction on the cervix, and is of diagnostic importance. This pain, which is worse with bowel movements, plays an additional part in bringing about constipation and its sequelae, although the frequency of constipation in women is such that one cannot say that it is a symptom of this disease.

Menstrual Disorders: Are frequent and varied and are usually present in the form of excess flow, clots, irregularities and exaggeration of pre or menstrual pains. None are typically characteristic of endocervical infection.

In these cases we believe the infection of the cervix leads to an increased pelvic congestion, and, possibly by sympathetic disturbances, results in the involvement of the ovarian secretion, which, in turn, produces uterine changes, such as uterine engorgement and hyperplasia of the endometrium, and then in the resulting menstrual disorders.

Rheumatic Disorders and General Health: In cases of low grades of arthritis, (with tonsils, sinuses and intestines ruled out as possible sources of infection), the cervix should always be looked upon with suspicion. For cervical infections constitute a not infrequent source of systemic infection and impaired general health. Rosenow and others have produced arthritis in rabbits by experi-



mental injection of anarobic streptococci obtained from the cervix of arthritic women. Further substantiation of the cervix as a foci of infection is the rapid improvement in the joint symptoms of patients when the cervical infection has been cleared up.

The long train of symptoms of fatigue-ability, headache, nervousness, backache, etc., associated with cervical infection is one of the most commonly overlooked group of symptoms that are attributable to such infections.

**Treatment:** To reiterate, chronic endocervicitis is a legacy of child bearing, and the ideal time for treating the deep bleeding tears is immediately after the delivery, before they have succeeded in producing the deep seated structural changes and the above mentioned sequelae of general and local symptoms.

But as the treatment of the condition is not always left to the discretion of the practitioner, and the co-operation of the patient not always at his command, often it remains to do the best that is possible with the condition as it presents itself.

The usual form of palliative treatment of douches as carried out by most women, succeed, at best, in nothing more than a superficial temporary cleansing of the vagina, and in a great many instances, due to the anatomical position of the lesion, these are worthless. The use of strong and caustic antiseptic solutions used as douches only damage the mucous membranes of the vagina, and may do a great deal of harm in aggravating the inflammatory processes which are already present.

Diathermy, in my hands, has proven unsatisfactory, despite the mental effect it has upon the patient.

Amputations and pan hysterectomy are advocated by some, and in older women, when the disease has extended beyond the cervix and into the pelvis, it must be treated in a more radical manner.

However, it is remarkable how completely a cervix that is extensively infected and enlarged, with, perhaps, deep lacerations and Nabothian cysts, can recover as the result of measures directed solely to the establishment of free drainage. The natural crypts and crevices which exist in the cervix, and the racemose structure of the cervical glands are such that the infection remains locked in the glands once they are infected, and progresses by extension to other structures. Also, the swelling of the tissues within the narrow cervical canal tends to hamper drainage and thereby allows the infection to penetrate the glands and deeper structure, which prohibits spontaneous cures. The treatment outlined below may require and extend over sev-

eral months, but the beneficial results warrant it.

Acute and subacute cases are converted into chronic cases by vaginal douches with a mild astringent antiseptic powder three times a day, and one-two weekly treatments to the cervical canal with tincture of iodine or 6 per cent mercurchrome. When the pelvic pain and tenderness has become quiescent, longitudinal searing is done along three areas on each side the entire length of the cervix, including only the gland structure or, using a hot olive tip cautery, the bulb is buried in the cervical canal, care being taken not to penetrate the musculature.

Following the cauterization, the area is again painted with one of the above solutions, and tampon, upon which some of the medication is placed, is inserted. The patient is told that she will have some low pelvic pain in from eight to twelve hours, but is to return for routine treatment as outlined above. Within five or six days a slight bleeding begins which may last for a few days to a week, followed by a more profuse discharge; in six weeks the lesion becomes quiescent and discharge practically, if not entirely, ceases.

Cauterization of the cervix is the best step midway between palliative and radical surgical treatment. It can only be done in chronic cases. When properly carried out on patients whose principle lesions are in the cervix, the results are certainly gratifying. The cauterization and follow up can be done in the office and make an ambulatory patient out of one that might otherwise have been hospitalized.

#### AFTER RESULTS

For this study a group of 100 cases have been selected that have had operations for salpingitis, retroflexion and even some cases of high supravaginal hysterectomy which have had a persistence of symptoms after the operation. Out of this group, twenty-eight were parous and eighteen were nulliparous. In over 68 per cent of the cases the operation was bilateral salpingectomy and anterior suspension of the uterus, in sixteen cases a supravaginal hysterectomy was done.

This study has been made over a period of two years, and the cases were treated over periods of from two months to two years.

The most important symptoms were leucorrhea and pelvic discomfort, nervousness and malaise.

In the cases of leucorrhea, 68 per cent had complete cessation of the discharge noticeable to the patient, 23 per cent had definite improvement and 9 per cent slight, if any, improvement.

Pain: Fifty-six per cent showed absence

of pain, 31 per cent definite improvement, and 23 per cent little, if any, improvement. The absence of marked improvement is really the result of cervical infection and the extension of the involvement to retroperitoneal lymph glands.

**General Health:** In this realm there is a decided improvement as a rule. Within two or three days after cauterization there is a definite sense of well-being, loss of sensation of fatigue and a marked improvement in nervousness, as well as in the rheumatic symptoms when they are present. In most instances there is a complete abatement of symptoms, and this improvement is not merely temporary and psychic, but usually permanent. Menstrual periods then become more normal, and bladder symptoms entirely disappear.

In this series 65 to 70 per cent of the cases required only one cauterization to ameliorate the condition, and with the remainder of the group, a second cauterization arrested the symptoms with a higher percentage of improvement. In fact, the improvement obtained in these patients was so gratifying to them that the cooperation in most cases was superior to that of the average dispensary patient.

#### SUMMARY

(1) Lacerations of the cervix should be repaired early in order to prevent cervical infection and its sequelae.

(2) Endocervicitis as a focus of infection is very common and produces widespread deterioration of the body.

(3) Cauterization is an ambulatory form of treatment in cases of chronic endocervicitis that produces very gratifying results.

(4) Clearing up of cervical infections is a simple means of prevention of general disability, as well as an eradication of possible source of cervical carcinoma.

If there is such a thing as a profession as a concept distinct from a vocation it must consist in the ideals which its members maintain, the dignity of character which they bring to the performance of their duties, and the austerity of the self-imposed ethical standards. To constitute a true profession there must be ethical traditions so potent as to bring into conformity members whose personal standards of conduct are at a lower level and to have an elevating and ennobling effect on those members. A profession cannot be created by resolution or become such over night. It requires many years for its development, and they must be years of self-denial, years when success by base means is scorned, years when no results bring honor except those free from the taint of unworthy methods.

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## PUERPERAL ECLAMPSIA AND CONSERVATIVE TREATMENT\*

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**Puerperal Eclampsia:** Convulsions, or a state that would lead to convulsions during the puerperal state, caused from a toxicosis or toxemia.

Etiology has been attributed to the kidneys and liver. Kidney of pregnancy, albuminuria, nephritis, an anemic state about the glomeruli, thrombotic patches in the cortex of the kidney caused by toxins in the blood from the child taken over by the placenta and from the placenta into the mother's circulation. Some authorities state that the kidney condition is a secondary condition due to the liver.

Note the function of the liver:

- (1) Metabolism of protein.
- (2) Detoxification of certain toxins in the blood.
- (3) Glycogenic function.
- (4) Formation of urea.
- (5) Excretion of bile.

Due to certain toxins in the blood during pregnancy, which is probably a protein or albuminous in nature, from the fetus, which is destroyed by the liver in the normal pregnant woman, but in some cases more work than can be done by the liver and kidneys. and in turn the toxins which are not destroyed from the fetus through the placenta are said to cause a thrombosis in the cortex of the liver and a necrosis in that area or a yellow atrophy of the liver. Improper diets, overeating, excess of meats and acid foods, excess of salt, and constipation all play a part in etiology.

**Symptoms:** Usually the first symptoms noted by the mother are headache, backache, general edema, tinnitus, disturbance of vision, turning blind, may or may not have a fast pulse, thirsty and stupid, and later convulsions and loss of conscience. On examination blood pressure may be elevated to 200 or more, heart sounds accentuated, general edema, uremic odor on the breath, and on examination of the urine, specific gravity high, albumin, tube cast, blood, and scant in quantity, and later convulsions.

In private practice a general practitioner does not see enough cases of eclampsia in his own work to be authoritative, and for a part of this paper I am indebted to Drs. Otto H. Schwarz and E. Lee Dorsett of St. Louis, Mo., in their article which appeared in the Southern Medical Journal of April, 1930, on "Conservative Treatment of Eclampsia."

**Prognosis:** The prognosis has been made

\*Read before the Southwestern Kentucky Medical Association at Paducah, May 12, 1931.



more favorable on the conservative treatment. Some authorities class cases as hepatic, renal, and cerebral, due to the pathology found in the kidneys, the liver and the brain.

I will mention classifications and treatment as given by the Congress of the British Association of Obstetricians and Gynecologists, the Rotunda Hospital at Dublin, and Drs. Schwarz and Dorsett of St. Louis. The English or British Association classified in 1922 a series of 2,055 cases with a mean mortality of 22.5 per cent, and classed cases as mild and severe. The severe classifications were those having two or more of the following symptoms: Pulse over 120; temperature over 103; over ten convulsions; urine which becomes solid on boiling, absence of edema with blood pressure of over 200, but otherwise do not so classify. Highest mortality occurred after Cesarean section and accouchement force. Cesarean section in mild cases 11.3 per cent and severe cases 63 per cent. At the Rotunda Hospital, Dublin, 204 cases with a mortality of 10.29 per cent. This report caused the British and Americans to note what they were doing.

No great change in the conservative treatment took place until after 1922 in the United States, although McPherson advocated conservative treatment in 1918. Formerly he had considered the operative treatment in eclampsia as the mode of treatment. On sixty-seven cases conservative treatment method 10.5 per cent maternal mortality and fetal mortality 28 per cent. New York Lying In Hospital, 250 cases radical series, maternal mortality of 30.8 per cent, and a fetal mortality of 44 per cent.

#### TREATMENT OF ECLAMPSIA BY THE DUBLIN METHOD, ROTUNDA HOSPITAL, DUBLIN

Treatment of eclampsia at the Dublin Hospital, 204 cases, 21 deaths, 10.29 per cent.

(1) Starvation, three days with no food, but plenty of water, which dilutes the poisons. The toxins in the blood from the fetus which are probably albuminous in nature are acted upon by the ferments in the blood to destroy, and on taking in food these poisons are not destroyed. Before the expiration of three days the patient may be improved and may induce labor or operate.

(2) Stomach lavage until return is clear and then leave 2 ounces of concentrated magnesium sulphate in the stomach.

(3) Colonic lavage with sodium bicarbonate one gram to pint until return clear, using a colon tube eighteen inches long, leaving one or two pints of the solution in the bowel.

(4) Morphine sulphate hypodermically by some is used.

(5) Injection of sodium bicarbonate solution under the breast. This should be used as

a routine except in the mild cases.

(6) Close observation of the patient by trained nurse.

#### STROGANOFF'S METHOD OF TREATMENT

(1) Dark room, nurse, morphine, and chloroform.

(2) Chloral hydrate by mouth with 100 c.c. milk, or by rectum if patient is unconscious in 100 c. c. milk and 100 c. c. sodium chloride solution one hour after admission.

(3) Morphine sulphate after chloroform inhalation ten or fifteen grains three hours after admission.

(4) After seven hours, chloral hydrate two grams.

(5) After thirteen hours, chloral hydrate, one-half gram.

(6) After twenty-one hours, one and one-half grams chloral hydrate.

(7) After each convulsion oxygen until breathing is improved, usually about five minutes.

(8) After three convulsions venesection of not more than 400 c.c. of blood.

(9) If convulsions, may give more chloroform and chloral hydrate.

(10) If no convulsions after thirty-four hours, give chloral hydrate 0.5 grams every eight hours for three days.

(11) Operate only in behalf of the child.

Dr. Dorsett of St. Louis in 1923 began magnesium sulphate solution injection and made his report to the St. Louis Gynecological Society as follows: Dorsett's first series of 186 cases with thirteen deaths, or 7 per cent mortality.

(1) Magnesium sulphate, 25 per cent solution intramuscular 10 c.c. and 5 c.c. after each convulsion until convulsions are controlled.

(2) Colonic irrigation.

(3) Gastric lavage leaving 60 c.c. of the 50 per cent magnesium sulphate solution in the stomach. As soon as the stomach is empty, give 50 c.c. of 10 per cent Karo syrup solution through a nasal tube if patient is unconscious, increasing to patient's tolerance. 250 to 300 c.c. of the solution.

(4) 500 to 1,000 c.c. intravenously 20 per cent glucose two or three times daily. Salines and sodium bicarbonate solutions are contraindicated because of an already retention of chlorides.

(5) May hasten labor with small doses of pituitrin or Cesarean section under local anesthesia.

Magnesium sulphate is said to act by penetrating between the neurons and to control the convulsions. Glucose acts as a diuretic, thereby relieving the system of certain poisons and at the same time diluting them in the blood and relieves the edema of the brain.

Intramuscular and intravenous injections of magnesium sulphate relieve the edema of the brain, but the intravenous and by mouth are said by some to relieve the edema of the brain more so than intramuscular injection, and others claim intramuscular injection relieves edema in the muscles only, which is theoretical. Injections into the veins and spinal canal are not as safe as the injections in the muscle. As a rule 1,000 c.c. of 10 per cent glucose was used in the veins and a total of 45 c.c. 25 per cent magnesium sulphate intramuscularly was used by Dr. Dorsett, and intravenous glucose in this series was seldom more than one injection of 1,000 c.c. of 10 per cent solution. Drs. Schwarz and Dorsett's mortality was 3.29 per cent less than any of the series quoted.

I am now reporting a patient, Mrs. E. C., age 22, primipara. First saw this patient November 5, 1928, menstruated last September 13, 1928, came to me November 5, 1928, vomiting of pregnancy. This patient did not return to me until the 22nd day of March, 1929, with the following symptoms: Temperature 99, pulse 64, blood pressure systolic 174, diastolic 80, general edema, headache, nervous, urine amber color, specific gravity 1020, reaction neutral, albumen four plus sugar negative, diagnosis toxemia pregnancy. Was given eliminative treatment and diuretics. Condition grew worse April 6, 1929. Induced labor. This patient was in bed about two weeks before delivery on a liquid diet, hot packs, elimination by bowels and kidneys. Condition grew worse, blood pressure went to 206. Began getting a disturbance in vision. Consultation was called and labor was induced, which necessitated a forcep delivery. After delivery about one and one-half hours patient began having convulsions and had five before the other physician and I could return to her. On returning we gave hypodermic of morphine one-quarter grain, tincture of veratrum viride, 1 c.c., hypodermic, bled patient about one pint. Patient so edematous could not get into veins well with the glucose. About 500 c.c. of 50 per cent glucose was given under the breast and in abdominal muscles, followed by fourteen units insulin, magnesium sulphate 10 c. c. 25 per cent intramuscular. Patient was unconscious during the time of all medication. She was also given some chloroform to control convulsions. In about twenty minutes after insulin was given which was preceded by the glucose, this patient came out of coma, was in a heavy sweat and insulin shock. I gave this patient two glasses of saturated solution of glucose and one orange juice. Her mental condition continued normal and she had no more convulsions. The heavy sweat passed off and in

about forty minutes Epsom salts was given by mouth. No more magnesium sulphate was given hypodermically. Patient was given diuretic of potassium acetate and nephretine tablets. The following day this patient's blood pressure was 110 systolic and 70 diastolic. Edema rapidly disappeared, but albumen continued in the urine for about six weeks. Child was premature and was delivered dead.

In my opinion had I have been able to have given the glucose intravenously instead of intramuscularly, I believe that I would not have gotten so much insulin shock, due to the fact that all the glucose had not been taken up from the tissues into the circulation when the insulin began taking effect. The more magnesium sulphate is given the less glucose is required.

This patient again conceived and was delivered in January of 1931. Urine continued normal until about four weeks before labor, at which time she developed albumen. Blood pressure began going up, but did not get above 160. I was able to carry this patient on the full term by dieting and diuretics. She went through a normal labor without any convulsions. She and child recovered.

#### HEALTH UNITS, GROUP PRACTICE, AND COMMUNITY HOSPITALS, AS A REMEDY FOR THE SCARCITY OF PHYSICIANS IN THE RURAL DISTRICTS\*

R. C. BURROW, M. D.

Cunningham.

After having been asked by a member of the Program Committee to prepare a paper, I had twenty-four hours in which to select my subject, or the title. That was hardly sufficient time to name it, so I have taken the liberty of giving it a bigger name than appears on the program. The title of my subject is: "Health Units, Group Practice, and Community Hospitals, As a Remedy for the Scarcity of Physicians in the Rural Districts." Just after being called upon for a paper, I received in the next mail a small pamphlet entitled "Medical Service in Kentucky, Studies No. 1" (meaning, I suppose, that there is more to follow.) This pamphlet treated on the same subject, namely, "Scarcity of Physicians in the Rural Districts," and the authors were J. S. Chambers, M. D., and Harry R. Lynn, A. M.

In their introduction, they state that a thorough survey has been made, and intimate that their suggestion, which virtually means

\*Read before the Southwestern Kentucky Medical Society, Paducah, May 12, 1931.



state medicine, is the only solution of the problem. They call attention to Governor Sampson's message to the 1929 session of the General Assembly, in which he recommends establishing a State Medical School, and the subsequent introduction in the House, of a bill for such a school. This, and other suggestions in their pamphlet, leads me to feel that their final solution to the problem is state medicine.

The time allowed for this paper will permit of but very little that might be said against state medicine, but I wish to say this: When you let the doctor's practice depend upon anything but satisfied patients, you destroy efficient medical service. But few doctors would give the best that is in them if their practice did not depend on a satisfied clientele.

Further, the state would not furnish more than one state educated doctor to the county, and he would ruin the territory for the independent physician, driving them out, and thereby creating a greater scarcity than now exists.

The time is short. The Legislature will meet again very shortly and this pamphlet is propaganda, getting ready for measures for state medicine during the next session. A member of the last General Assembly informed me that part of the propaganda for a state medical college was, that if a young man wanted to study medicine now the schools were curtailing their classes so that they could not get in. I receive letters from colleges wanting names of young men and young women qualified to study medicine. From this I judge that they are wanting more medical students. It is up to the profession to find something better than state medicine, and so inform our Legislature before their next meeting. The scarcity exists, but state medicine will make it worse, by driving out the independent doctors.

I am suggesting Health Units, Group Practice, and Community Hospitals as the remedy, hoping that the membership of this society presents it, or something better, to our state society, so that the profession will be ready for united action to prevent state medicine.

They suggest community hospitals in their plan, which is good, but it is just as easy to have this feature with group practice as with state medicine.

Why does not the young medical graduate locate in the rural districts? The income from a rural practice will not enable the physician to equip himself to render up-to-date service. The conscientious physician is satisfied with nothing less, consequently a great deal of his time is spent on the road, convey-

ing his patients to cities where such service is to be had, at a great expense to his patient and loss of time and expense to himself.

1. What constitutes up-to-date equipment for a doctor today? Complete X-ray equipment, including fluoroscope. This need not include equipment for the study of microscopic sections of tissues, if the group is small, but bone surgery is a vital part of the practice in the most rural district, and no doctor can feel that he has done justice to his patient until he has photographed his work, and knows that the fractured ends are in coaptation, or treat many of his patients until he has made his diagnosis sure, by means of X-ray findings.

2. Basal metabolic unit is essential, also electrocardiograph.

3. Laboratory equipment, including reagents and chemicals necessary for chemistry, blood, urine, stools, gastric contents, sputum, blood counts, Wasserman and urinalysis.

4. Physiotherapy equipment (limited amount), including at least violet ray diathermy, and various kinds of lights used in physiotherapy.

5. Surgical instruments.

6. And most essential, a trained and competent technician to do all this work, which would cost from twelve to eighteen hundred dollars per year.

7. The latest books on all subjects pertaining to medicine, and a goodly number of our best medical journals. This equipment is very necessary to any doctor. The young graduate has been trained to depend on it, and could not practice without it, but no one doctor, no matter how vigorous and energetic, can earn enough income in rural districts to have this very necessary equipment and supplies.

No wonder the young graduate will take his chances in the crowded cities, where competition is strong. No wonder the father will hesitate to finance his son, or daughter through college to practice in rural districts.

Give the young graduate a chance to join a group, where his outlay for equipment will be only his proportionate part of the group, and many will leave the crowded cities, where there is one doctor to every three or four hundred people, and locate in the rural districts, where there is only one physician to every two thousand people, and where specializing would not be drawn to such narrow limits.

Cooperation with the health unit would be an advantage to both the health work and the group. One of the requirements of qualification for a health nurse should be a thorough training in technology. We could then get quick reports on what we now have to

send to the state board, and wait days and sometimes a week for reports. A better line on work that should be done by the health unit, and work that should be done by the group, (which would vary in different localities) could be ascertained by the cooperation, and other advantages too numerous to mention would be gained by such cooperation, and by having the headquarters of the health unit in close proximity to the group.

Community hospitals, with an adequate number of nurses, would figure largely in relieving the scarcity of physicians in rural districts, (and the supply of nurses seems to be adequate for all needs.) The hospital should belong to the community, and should not be maintained or operated for profit. Let the group of doctors be required to furnish the equipment as listed above. It matters little how the hospital is built, whether by fiscal appropriation from county or state, or both, or church, or by public subscription. It would be far cheaper on the state to appropriate money for community hospitals, the amount of such appropriation to be matched by an equal sum from the county or community, than it would be for the state to build and finance state medical schools. It would do far more toward furnishing efficient medical service. State medical schools would do but little good toward meeting the issue without the community hospital, but give us community hospitals and it will be a long time before there will be a lack of physicians to run them.

Carlisle County has one physician to every fourteen hundred population, and no one ever suffers for lack of medical attention, unless it is the "deadbeat." Those deserving of charity are not allowed to suffer. Give us a hospital, the necessary equipment mentioned above, the help of technicians and nurses, and one doctor can render efficient service to a population of two thousand, and at a price they are able to pay.

Chambers and Lynn say that between eight and nine hundred is the right proportion of population per doctor. Rural communities cannot support one doctor to eight or nine hundred population, and it does not require that number to render ample service to the sick. Specializing would not be on such narrow limits in rural group practice. Rural communities cannot support a staff of specialists, but one doctor can learn to do many things well, and a group, consisting of one doctor to a two thousand population within a radius of ten miles, could attend to 95 per cent of the local ills. I am not condemning specializing. Our specialists have added too much to medicine to be condemned, but we are having to carry too many patients

that can ill afford the expense to specialists in the city that with proper equipment, could be cared for in the community.

Neither is there any necessity for lowering the standard of medicine. The present output, with proper distribution of the doctors we have, will meet all requirements for years to come. Proper distribution can be brought about only by making location in the rural districts more attractive. Even state-educated doctors will not locate in rural districts with conditions as they are, but put proper equipment within their reach and many will leave the crowded cities for the rural district.

The solution, in my opinion, would be group practice, so that the cost of equipment can be shared, instead of each having to buy the same class of equipment. Health units cooperating with group practice for their mutual advantage, and community hospitals, which will lessen the work and provide better nursing for all hospital cases.

### BOOK REVIEWS

**TEXT BOOK OF HISTOLOGY.** By Eugène C. Piette, M. D., Pathologist and Director of the Laboratory of the West Suburban Hospital, Oak Park, Ill. With 277 illustrations and 466 pages. F. A. Davis Company, Publishers, Philadelphia. Price \$4.50.

Dr. Piette in publishing his textbook of Histology planned it to suit the needs of medical and dental students. It is short and written in a concise style to further conserve the students' time. Bold type is used to facilitate review. Outstanding European and American literature has been included as far as possible.

The physiological background of modern histology has been carefully emphasized and special short chapters have been developed to the autonomous nervous system and the reticulo-endothelial system.

**CERTIFIED MILK CONFERENCES** Held in 1929. Annual Conference American Association of Medical Milk Commissions, Inc. and Certified Milk Producers' Association of America, Inc. Montreal, Canada, June 24-25, 1929. Annual Conference Metropolitan Certified Milk Producers, Inc. With the Certified Milk Producers' Association of America, Inc., New York, N. Y. Feb. 4, 1929.

Constitution and By-laws of the American Association of Medical Milk Commissions, Inc. Constitution and By-laws of the Metropolitan Certified Milk Producers, Inc. Methods and Standards for the Production of Certified Milk.



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NEXT MEETING LOUISVILLE

## COUNTY SOCIETY REPORTS

**Jefferson:** The November program of the Jefferson County Medical Society will be as follows:

### November 2nd

#### Case Reports

X-ray Films and Calcification in Pulmonary Tuberculosis, Oscar O. Miller, M. D.

(Title to be supplied later), James H. Pritchett, M. D.

#### Essay

Cancer of the Uterus, L. Wallace Frank, M. D.  
Discussion to be opened by Irvin Abell, M. D.

### November 16th

#### Case Reports

A Case of Perthes' Disease, Orville R. Miller, M. D.

Complicated Fracture, Frank P. Strickler, M. D.

#### Essay

Rabies. Case Reports with Autopsies.

Pathological Material to be presented by A. J. Miller, M. D.

Discussion to be opened by Lillian H. South, M. D.

J. D. ALLEN, President,  
J. C. BELL, Secretary.

**Harlan:** The regular meeting of the Society was held Saturday, September 26th, at noon, in the basement of the Christian Church. We were favored with three very interesting talks. Dr. L. Wallace Frank of Louisville gave a talk on "The Acute Abdomen." Dr. Sam A. Overstreet, of Louisville, talked on "The X-ray Diagnosis of Gastro Intestinal Lesions." Dr. James R. Stites gave a paper on "The Treatment of Urinary Infections."

The following doctors attended the meeting: Drs. Cawood, Linden, Bailey, Parks, Petty, Diefendorf, Buttermore, J. G. Smith, L. O. Smith, E. M. Howard, N. S. Howard, Ball, Aiken, Stites, Frank Overstreet, Gunn and Riddell.

M. M. RIDDELL, Secretary.

**Carlisle and Ballard:** The Carlisle and Ballard County Medical Societies, believing that adequate medical service in Kentucky should be made available to all of her people, and

Believing that it is the duty of the State, County and Community to co-operate in providing such needs, and

Believing that faulty distribution, rather than insufficient numbers of Physicians in the State, constitutes the heart of the problem;

The Carlisle County Medical Society, and The Ballard County Medical Society, declares that it is their judgment that:

(1) Doctors should not be expected to practice Medicine where facilities are such that they cannot render efficient service.

(2) That Community Hospitals and Group Practice would attract young graduates to locate in rural districts.

(3) That our Legislature should raise its appropriation to 50 per cent of the cost of Rural Hospitals.

(4) That County Fiscal Courts can make appropriations to build and maintain Hospitals as well as Court Houses or Public Schools. The health of a County is as vital to the happiness of its people, as is education or legal processes.

(5) That Rural Doctors realize the handicap under which they work, and should assume the leadership in uncovering the cause, and discovering the remedy for its relief.

EZRA TITTSWORTH, M. D., Chairman  
Committee of Ballard County Society.  
F. H. RUSSELL, M. D., Member  
Committee of Ballard County Society.  
R. C. BURROW, M. D., Chairman  
Committee of Carlisle County Society.  
J. F. HARRELL, M. D., Member  
Committee of Carlisle County Society.

**Franklin:** The Society met in regular session at 12 o'clock noon on October 1, 1931, in the writing room of the Capital Hotel.

Members present were: Drs. Ginn, Coblin, Travis, Minish, Coleman, Patterson, Jackson and Demaree. Minutes of the last meeting were read and approved. The Society voted to assess each member \$1.00 to take care of current expenses.

Dr. Coblin had charge of the program and reported an unusual clinical case of genital sore. Also Dr. Travis reported a case of meningitis, and Dr. Heilman reported a case of syphilitic infection. These cases were very interesting and were discussed by most of the members present.

The Society then adjourned to the hotel dining room for lunch.

C. E. YOUNG, M. D., Secretary.

**Grant:** The Grant County Medical Society met on the usual time, 7:30 p. m. Wednesday, September 16, 1931, at the office of the Health Department with the following members present: Rrs. J. L. Price, J. W. Abernathy, Dr. C. M. Eckler, N. H. Ellis, J. J. Marshall, C. D. O'Hara, W. J. Zinn and C. A. Eckler.

The minutes of the last meeting were read and approved, and the usual business of the meeting was entered into at once.

The report of the committee on the handling of Pauper Practice, consisting of Drs. Blaine, O'Hara and Mann, was called for. Drs. Blaine and Mann being absent, Dr. O'Hara read the paper on the report of the committee, which was lengthy and well gotten up, as to the best means possible for handling the practice.

There was immediately a committee appointed

to meet with the Fiscal Court and to lay the plans before them. The committee consisted of President, Dr. Abernathy; Secretary, Dr. C. A. Eckler, and Dr. J. J. Marshall. This committee was instructed by the entire Society to tell the Fiscal Court that they thought the amount should be six hundred dollars per year, and the Fiscal Court to be the judge as to who was a pauper.

Dr. C. M. Eckler made a short report on the State Meeting and took up some points of vital interest and also boosted the Grant County Society at this meeting. He reported an excellent time and a large attendance. Dr. Ellis also made a brief talk on the State Meeting.

The subject of "Scarlet Fever" was opened by Dr. C. D. O'Hara, who took up the Berea epidemic, and showed how the stride in diagnostic points had changed and how by the microscope even a diagnosis of scarlet fever can be made without eruption or fever. He talked at length from a scientific standpoint. Dr. J. J. Marshall also discussed at length this malady, showing how Bright's disease so frequently follows this disease. Dr. N. H. Ellis exhibited the Schick syringe for testing the susceptibility of anyone to scarlet fever. This was very interesting and he promised to test the children of the county.

Dr. C. M. Eckler and Dr. J. L. Price stressed the importance of not losing the sight of clinical medicine, as we did not have access to laboratories and microscopes as quickly as we might need them. Dr. J. W. Abernathy would depend, to a great extent, on clinical symptoms alone. The subject was entered into thoroughly and heatedly at times and all points were well brought out.

There being nothing further to accomplish at this time, motion and second to adjourn, carried.

C. A. ECKLER, Secretary.

The New York State Department of Health advocates pasteurization as the most effective measure for preventing the spread of communicable disease through milk. That there is need for such a measure is indicated by the fact that since January 1, 1917, there have been 95 milk-borne outbreaks of sickness in the state, exclusive of New York City, 93 of which have been traced to unpasteurized milk. The Department, however, recognizes that there are many sparsely settled sections in which the requirement that all milk be pasteurized would be impractical of enforcement. The ideal milk is certified milk, but that is next to impossible to obtain except for a very restricted number of people, for control of certified milk is a difficult and expensive problem, and in turn the product is so expensive to consumers that only the well-to-do can afford to buy it. Therefore, pasteurized milk should be insisted upon in all but the most sparsely settled sections.





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# Papers and Speeches of Dr. J. Chalmers Da Costa

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# Relative Values of Carbohydrates

## New Findings Confirm Old Truths

Recent scientific investigations in rats (tabulated at the right) are in accord with many years of clinical observations on babies, as shown by the following excerpts from authoritative medical literature reflecting the consensus of three decades of pediatric experience.

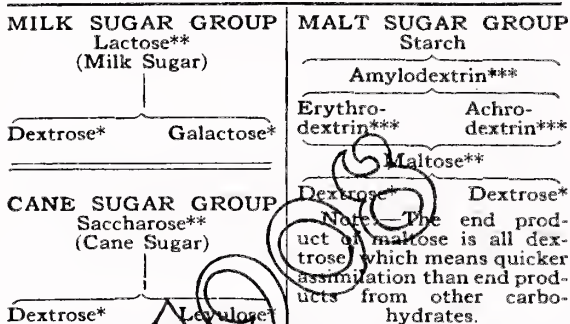
### RELATIVE ASSIMILATION VALUES OF VARIOUS CARBOHYDRATES<sup>1</sup>

	Average per 100 gms. body weight
1 MALTOSÉ.....	1.50
2 DEXTRIN + MALTOSÉ.....	1.32
3 Glucose + dextrin.....	1.32
4 Glucose + sucrose.....	1.32
5 Glucose.....	1.04
6 Sucrose + maltose.....	0.98
7 Fructose + glucose.....	0.98
8 Sucrose + dextrin.....	0.76
9 Sucrose.....	0.76
10 Fructose.....	0.5
11 Glucose + lactose.....	0.26
12 Lactose.....	0.16
13 Galactose.....	0.1

These authors have also stated: "Maltose, fructose, glucose, starch and dextrin lead in nutritive value, followed by galactose, mannose, arabinose, xylose, lactose, sucrose and glycogen."<sup>2</sup>

<sup>1</sup> H. Ariyama and K. Takahasi: *Biochem. Z.*, 216:269 (1929) and <sup>2</sup> *J. Agr. Chem. Soc., Japan* 5; 674 (1929).

### CHART OF CARBOHYDRATE HYDROLYSIS<sup>3</sup>

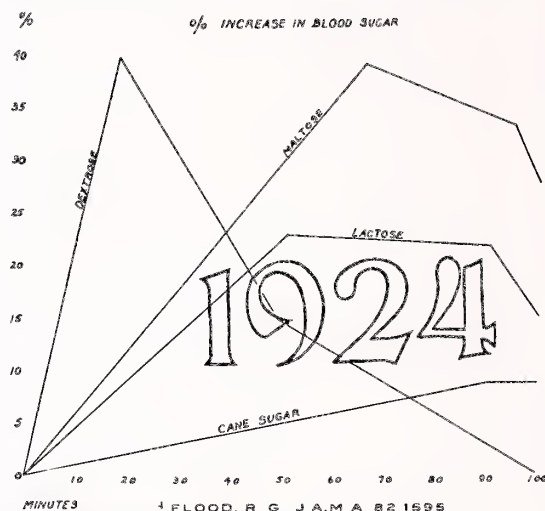


\*Monosaccharide \*\*Disaccharide \*\*\*Polysaccharide

Of the monosaccharides, dextrose, the end product of maltose, is converted into glycogen more easily than levulose or galactose. Therefore, maltose, which splits into two molecules of dextrose, may be absorbed with much less digestive energy than either lactose or saccharose.

<sup>3</sup> Morse, J. L. & Talbot, F. B. *Boston Med. & Surg. J.*, 159:852.

### RATE OF SUGAR ABSORPTION IN NEWBORN<sup>4</sup>



### MALTOSÉ OR LACTOSÉ IN INFANT FEEDING<sup>5</sup>

**Answer**—The superiority of one form of carbohydrate over another in artificial feeding of infants has been much discussed during recent years. It is generally accepted that cow's milk without modification is not a satisfactory infant food. So far as the carbohydrate is concerned, about one-fifth to one-eighth ounce per pound of infant's body weight is required daily. To supply this amount it is necessary to add carbohydrates in some form. Admitting that lactose is the sugar supplied in human milk, it does not follow that it is the sugar best tolerated in another medium, such as cow's milk. It is generally believed that lactose is more laxative than sucrose—that it must be fed with a certain amount of caution, as fermentative upsets are likely to follow if amounts approximating that found in human milk are fed. There is cause for disagreement among clinicians, as it is important to consider the other food elements; i.e., the amounts of fat and protein fed as well as the medium in which they are fed. For example, when lactic acid milk is used, more added carbohydrate seems to be tolerated than when sweet milk mixtures are fed. Sucrose has the advantage of being much cheaper and is always available. Evidence has not been presented that it should

not be used in infant feeding. With its general use in large infant welfare clinics where supervision is a matter of routine, there is less to be said against it as far as clinical results are concerned. The complaint that it is too sweet is not often encountered when the usual amounts are fed. The dextrin-maltose preparations possess certain advantages. When they are added to cow's milk mixtures, we have a combination of three forms of carbohydrates, lactose, dextrin and maltose, all having different reactions in the intestinal tract and different absorption rates. Because of the relatively slower conversion of dextrins to maltose and then to dextrose, fermentative processes are less likely to develop. Those preparations containing relatively more maltose are more laxative than those containing a higher percentage of dextrin (unless alkali salts such as potassium salts are added). It is common experience clinically that larger amounts of dextrin-maltose preparations may be fed as compared with the simple sugars. Obviously, when there is a lessened sugar tolerance such as occurs in many digestive disturbances, dextrin-maltose compounds may be used to advantage. <sup>5</sup>*Queries and Minor Notes*, J. A. M. A., 88:266.



# KENTUCKY MEDICAL JOURNAL

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## EDITORIALS

### THE AMERICAN COLLEGE OF PHYSICIANS

The Sixteenth Annual Clinical Session of the American College of Physicians will be held in San Francisco, California, April 4-8, 1932. The headquarters in San Francisco will be the Palace Hotel, where the general scientific sessions, registration and exhibits will be held. Clinics will be conducted in various hospitals and institutions in San Francisco and near-by communities.

Dr. S. Marx White, Minneapolis, President of the College, has in charge the selection of speakers and subjects on the general program, while Dr. William J. Kerr, San Francisco, Professor of Medicine at the University of California Medical School, is the General Chairman of the Session, and is responsible for all local arrangements, in addition to the arrangement of programs and demonstrations. Following the San Francisco Session a post-convention tour will be conducted through Yosemite Valley, Southern California, (with two days in Los Angeles) and the Grand Canyon of Arizona.

### MEDICAL FILMS

The Medical Films Division of International Pictures, 630 Ninth Ave., New York City, through its President, Rudolf Mayer, brother of Louis B. Mayer of M. G. M., announces the launching of an ambitious program of medical educational films through the medium of 'sound' and silent motion pictures.

Their first intention is to form a central bureau for the release of medical motion pictures through a series of 150 film exchanges now being established throughout the country. With this close knit organization of exchanges and consequent nation-wide distribution afforded, it is hoped to encourage hospitals, medical schools, societies and centers to install equipment so that the motion picture can become an integral part of medical training.

In addition, a series of new films will be produced. This series will be produced under the direction of an Advisory Board of medical men and will endeavor to conform to a curriculum of medical education rather

than the sporadic production of diverse film having no sequential relation to each other.

The program will not set out to displace any of the regular features of the usual medical curriculum, but to bring within the compass of every medical school, hospital or group, the various fields of specialized research, clinical work and treatment carried on by laboratories, centers and clinic recognized as being authorities on specific subjects, such subjects as Basal Metabolism, Radium Therapy, Diathermy, Endocrinology, etc., may be instanced as being examples of the fields to be covered.

Further developments in this connection, and particularly concerning the establishment of an Advisory Board, will be announced in the course of the next two or three weeks. In the meantime, International Pictures, Inc. are anxious to hear from doctors and medical bodies who have already produced pictures, or are in the process of production, so that the task of centralizing distribution and the issuing of a complete catalogue of medical films available may be completed.

### THE PROCEEDINGS

In this issue of the JOURNAL will be found the proceedings of the general session and a verbatim report of all that was spoken or read in the House of Delegates at the Lexington meeting. The Association is a truly democratic organization; its delegates represent each component County Medical Society and transact the business of the Association, and outline its policies for the ensuing year. No money is expended without their approval, and voucher checks are published by their order in the annual number of the JOURNAL so that anyone can know exactly what the Association is spending. If any procedure, or item of expense does not meet the approval of any member of the Association, it is not only their privilege, but their duty to express their opinion to the Forum of the JOURNAL.

### THE INDEX

This issue of the JOURNAL contains the index for 1931. All the articles are listed in alphabetical order and are cross indexed according to the principle-subject matter. The

County Society reports are given as an aid to the Secretary so he can readily refer to them, and especially if he has his JOURNAL bound he will have a record of the proceedings of his Society in one volume.

This Index is added as a completion of the JOURNAL and we trust it will be of service to the members of the Association.

### THE ROCKEFELLER FOUNDATION ANNUAL REPORT

Each year it is the pleasure of the writer to read from cover to cover the annual report of the Rockefeller Foundation. It is a epitome of public health work and research in almost every country in the world and its illustrations and descriptions of foreign countries rival any travelogue or literature we have read.

Last year it was the writer's privilege to visit nine foreign countries and in almost every instance were found Public Health Officials who had been educated by the Foundation speaking perfect English through the Foundation's generous grant; they were familiar with our problems and could discourse in our language on almost any subject. Anyone who is sufficiently interested and wants to read this book, if they will write the JOURNAL it will be lent them. It is indeed a valuable book.

### A NEW BOOK

Regardless of what department of medicine a physician may use as a specialty, he will always have occasion to refer to a good book on Bacteriology. Almost every day new problems arise in this field that effect every branch of medicine and unless doctors can properly interpret laboratory results they not only become worthless but are exceedingly dangerous. For instance, a laboratory can make a tentative diagnosis of scarlet fever, but the physician must know that the specimen must be secured from the nose and throat and must be planted immediately on blood serum that must be kept at body temperature for at least two hours before mailing and upon reaching the Laboratory a smear is made from the blood serum tube and inoculated on blood agar. Minute hemolytic Streptococci from such a case is presumptive evidence that it is scarlet fever, all other clinical symptoms being equal, but no physician has a right to make a diagnosis upon this proof only, and he would not do it if he would take the trouble to read such a book as Todd & Sanford, published by W. B. Saunders & Co., Philadelphia, which we consider one of the best books on Bacteriology at present on the market, because it really discusses its subject in a manner which is understandable.

### OFFICIAL ANNOUNCEMENTS

#### MINUTES OF THE EIGHTY-FIRST ANNUAL SCIENTIFIC SESSION OF THE KENTUCKY STATE MEDICAL ASSOCIATION, HELD AT LEXINGTON SEPT. 8, 9, 10, 1931 FIRST SCIENTIFIC SESSION

TUESDAY MORNING, SEPTEMBER 8

The opening session of the Eighty-First Annual Meeting of the Kentucky State Medical Association, held in the Memorial Building, University of Kentucky, Lexington, September, 8-10, 1931, was called to order at 9:15 o'clock, W. B. McClure, Lexington, President of the Association, presiding.

PRESIDENT MCCLURE: Before formally calling this Association to order, I want to make an explanation. I hold in my hand a gavel which was recently presented to the Fayette County Medical Society by the late Dr. J. Addison Stucky; in fact, it was in process of construction at the time of his untimely and tragic death, for the purpose of presentation to the Fayette County Medical Society. By resolution the Fayette County Medical Society requested that this gavel be used on this occasion for the opening of the Eighty-First Session of the Kentucky State Medical Association, of which he was an honored, efficient, energetic, loved member. He served this Association for more than half a century, and in loving appreciation of that devoted man I now call this Association to order.

I want to mention something of the historic feature of this gavel. Dr. Stucky, who always revered the pioneers of medicine, went to Danville and secured from the home of Ephriam McDowell a section of cherry tree, that cherry tree said to have been planted by McDowell himself. He then went to the office of Dr. McDowell and secured a piece of pine from the very room in which that famous, world-wide known operation was done. He then went over and secured from a rafter of Morrison Chapel of Transylvania College a piece of oak, and out of these skilfully moulded this beautiful gavel.

We will now arise and have the invocation by Dr. A. W. Fortune, Pastor of the Central Christian Church of Lexington.

DR. A. W. FORTUNE: Our Father, we know Thou art not far from us, for in Thee we have our being. Sometimes we feel sufficient in ourselves; sometimes we face experiences which make us realize our helplessness. We know that Thou dost love us and art seeking our good. Thou hast put some of Thine own nature within us, which lifts us up and inspires us to seek the higher things. Because we have some of Thine own nature we are, in a measure, able to read Thy thoughts and to know Thy purposes.



Our Father, we believe it is Thy plan that we shall be well and happy, but we have missed the way and brought suffering upon ourselves. We thank Thee for those who co-operate with Thee to relieve suffering and to help build a better world. We thank Thee for these men and women and the great company to which they belong, who count not their lives dear unto themselves, but face danger when duty calls. O God, bless them, give them wisdom and skill that they may conquer disease; keep their hearts warm that they may inspire hope and courage in those who need their help; give them strength of character so they shall make men strong in spirit as well as in body; make them worthy, O God, to stand beside those who are passing through the valley.

We thank Thee for the Great Physician. Help us to walk in His steps so that there shall be strength in our touch.

Our Father, bless these men in their counsels together, and we pray that these days may be filled with rich experiences for each of them. May they be for some a mount of vision in which they shall see the way that has hitherto been obscured. May some of them hear the call to service in a way they have never heard it. O God, help them to know the matchless opportunity that is theirs in extending Thy kingdom through their calling.

We thank Thee for every agency for good. May good influence prevail so that Thy will shall be done on earth.

Forgive us our sins of commission and of omission. Lead us by Thy Spirit, and when our work is done, bring us home, we ask in our Master's name. Amen.

**PRESIDENT MCCLURE:** The address of welcome will be delivered by Dean W. L. Taylor of the University of Kentucky.

**DEAN W. L. TAYLOR:** Ladies and gentlemen, I am exceedingly sorry that President McVey could not have been here this morning to give to you the very cordial welcome of the university. Unfortunately he has been detained because of hay fever. When you have discovered a way to keep him from having hay fever in the summertime, I guarantee his presence when you want him, and I hope you discover it soon.

We are always glad to have the citizenship of Kentucky visit the campus of the university. We are particularly happy this morning to have Kentucky's most learned society as our guests on the campus. We are honored with your presence, and we hope to gain while you are here a new inspiration that will carry us on not only during the year, but for many years to come. For many years we have looked to the medical profession and the medical association for high standards in training, in ethics and in ideals. Those of us

in the teaching profession have pointed to your achievements with pride and have tried, as far as we could, to build similar standards for our own membership. It has not been an easy thing to do in teaching. The rewards are not sufficiently large in the teaching profession to enable us to move forward as rapidly as we would like to go, but we have made some progress, using the medical profession as our ideal. Ultimately we hope to achieve, at least on the higher levels of teaching, the same high standard that you set for practice in your profession.

Your meeting this week precedes, I believe, the sixty-seventh or sixty-eighth year of the university's work. The University of Kentucky is a young institution in comparison to many of the state institutions of higher learning in the land. Kentucky, second oldest of all the states with the exception of the thirteen original colonies, was one of the slowest to attack the problem of higher education on a state-supported basis. The passage of the Morrell Act in 1862 necessitated that the State of Kentucky do something for higher education. Accordingly, in 1865, a department was established in connection with Transylvania University, then known as Kentucky University, and that department grew into, in 1878, the Agricultural-Mechanical College, which was established on a separate campus with a different president, not the one who was serving Transylvania at that time.

The university in the period of years that it has been an institution to itself has had three presidents. Hanging on the left wall you see the portrait of James Kennedy Patterson, the first president of the institution who served from 1878 until 1910, a scholarly man, a man of great ability, a man of learning, a man of great consecration of purpose. On the opposite wall you see the portrait of the second president, Henry S. Barker, who served from 1910 to 1916. For a year, then, we had no president, and after that time, 1917, President McVey, whose picture you see in the back, came to serve as president of this institution.

It is a rather remarkable thing that in this period of years from 1865 to 1931 we have had only three presidents, and we hope it will be many years before we have another.

The growth of the university during these years has been an interesting thing. I can perhaps give you the growth of the university not in numbers of students attending, but in a little easier way than that. Under President Patterson's regime, or from 1866 to 1910, there were graduated from the University of Kentucky 905 people. In that period from 1910 to 1916, under President Barker, there were graduated 863, in a period of seven years, one might say, as op-

posed to 905 in a period of about forty-four years. Under President McVey's regime there have been graduated 3,309 people from the university—15 per cent under President Patterson's forty-four years, 14 per cent under President Barker's seven years, 70 per cent under President McVey in fourteen years. Now numbers do not tell the entire story. President Patterson and President Barker were simply laying the foundation upon which President McVey has builded wisely and well.

The university is growing in a very interesting and a very rapid way. Instead of one commencement a year, we now have three commencements a year, and you may be interested to know that in the three commencements that we have held in January, June and August of this year, we have granted 585 degrees, more than half as many as were granted previously in forty-four years. Ninety-eight of the degrees that have been granted this year have been the Masters' and Doctors' degrees. More Masters' and Doctors' degrees have been granted this year than all degrees granted when I received my degree at the university in 1912.

The university has made remarkable progress in building in the past few years. In the past five years McVey Hall has gone up on the campus, a beautiful new chemistry building has been built, one of the two or three very finest library buildings in the whole South has been erected, and a training school which occupies the site formerly used as a city dump in Lexington is standing just across the way. I hope you see the training school for no other reason than to appreciate fully what happened to the dump since you were here the last time. Interestingly enough, in this training school, which is used as a practice school for the University of Kentucky and where many institutions find difficulty in getting parents to send their children, we have room for 210 children in the elementary school and 210 children in the high school. We are enrolling over there this morning, and we have a waiting list for the elementary school of 369; we have the 210 already admitted, and we have 369 children asking for admission. We have 210 already admitted to the high school, and we have 155 asking for admission there. That is interesting, very interesting, and it is largely due, almost wholly due, to the excellent corps of teachers in that training school.

I had one mother come last spring to enroll her little child in the first grade, and I told her that we couldn't take the little child in the first grade. We had a long waiting list then for the first grade, but I said, "We will put your name on the list."

She said, "I have another little girl three,

I would like to enroll her in the kindergarten." I told her we would be very happy to take the little girl in the kindergarten, but for the next three years it looked as if every place in the kindergarten was taken.

She said, "I am expecting a child sometime this fall. May I enroll that child now?" I told her we were not dealing in futures in the training school, but we would be glad to take the child's name just as soon as the child came.

I hope you will see the library, and I hope you will see the training school before you leave the campus, because they are the two newest buildings, with the exception of some of the agricultural buildings, which also we would like to have you see.

But we are not so much concerned with numbers at the university as we are concerned with quality. The standing of an institution is finally determined by the achievements of its alumni. They must win in the battle of life if the university wins in its work. The University of Kentucky is striving with all its might to build men and women physically strong, mentally alert, spiritually sensitive, men and women able to meet an ever-changing civilization. To do this the institution is constantly trying to provide teachers qualified to serve as counselors and guides, teachers of high scholarship, fine ideals, right attitudes, and sterling character.

In behalf of the faculty, the staff, the President, the board of trustees, I welcome you to the university. May the days be cool and the nights pleasant, and may your meeting be the best in the history of the Association. (Applause.)

PRESIDENT MCCLURE: We will now hear from Dr. Charles C. Garr, for the Fayette County Medical Society.

CHARLES C. GARR, Lexington: Mr. President, Ladies, Members of the Kentucky State Medical Association, and Guests: In behalf of the Fayette County Medical Society I extend to you a very hearty and sincere welcome. We are proud to be your hosts. We hope that your stay here will be filled with pleasure and comfort. To show you that my welcome is genuine and sincere, I shall make no further speech, but bid you thrice welcome. (Applause.)

PRESIDENT MCCLURE: The response to the addresses of welcome will be delivered by the oldest living expresident of this Association. You will be surprised how young he looks. We will hear from Dr. R. C. McChord. (Applause.)

R. C. MCCORD, Lebanon: On behalf of the Kentucky State Medical Association I want to thank the citizens of Lexington and the Fayette County Medical Society for the cordial words of welcome extended by your



distinguished representatives. You have not only welcomed us with words of cordiality and sincerity, but you have thrown open the doors of a great university for a place of meeting and a home for us, practically without money and without price.

We remember with gratitude the many times in the past when we have been your guests. As an evidence of our appreciation of the past and belief in your sincerity, we are here again.

The Fayette County Medical Society has at all times added to our ranks its distinguished membership, many of whom we have delighted to honor by calling them to the highest office in our gift, the presidency. We feel honored to be your guests, and we are grateful. (Applause.)

PRESIDENT MCCLURE: I want to say that on this occasion we are reviving an old custom, a beautiful one, I think. In olden times at the opening session of this Association, all the expresidents were expected to appear on the stage. I think we have them here, but if there happens to be an expresident of this Association in the audience, we will be glad to have him come forward and occupy a seat on the stage.

The time has now arrived when the office of President is to be passed to another. I can only hope for him that he gets the genuine pleasure and enjoyment out of his service that I have had during the past year.

We are fortunate in having a man who has done much for organized medicine, a man whose private reputation is above reproach, a man whose standing in his profession is an enviable one, a man whose devotion to the highest ideals of medicine renders him peculiarly fitted for the office of President of this Association. I now have the very great pleasure of presenting to you my successor Dr. James T. Reddick of Paducah. (Applause.)

Dr. McClure bestowed on the incoming President the badge of office, and Dr. Reddick took the chair.

PRESIDENT REDDICK: Mr. Retiring President, Members of the Kentucky State Medical Association, Guests, Ladies and Gentlemen. I accept this office with a deep consciousness of its importance and distinction and with a heart full of gratitude to the members of the House of Delegates at Bowling Green a year ago when I was elevated to the office of President-Elect of this Association. May I now express my sincere appreciation of those beautiful eulogies spoken by my neighbor and friend, Dr. Hunt of Mayfield and my friend, Dr. Orr of Paris, on that occasion when my name was presented to the House of Delegates.

It was my pleasure to become a member of

this Association thirty-nine years ago in Louisville, Kentucky. It seems to me but a few years, but let me name a few of the men who have dominated the affairs of our Association, and I feel sure you will hear them with a spirit of reverence and grateful recollection. They were men who were connected with the Association for years. Some of them have been elevated to the most exalted position in the American Medical Association; many of them were teachers in the medical schools; all of them were ideal citizens, respected and honored in their respective communities. There was Dr. McMurtry, there were Dr. W. H. Wathen, Dr. T. Hunt Stucky, Dr. Ouchterloney, the great teacher; Dr. E. R. Palmer, Sr., the silver-tongued orator of the medical profession of Kentucky; Dr. Louis Frank was a young member at that time, Dr. Larrabee, Dr. William Bailey, and many others whose names I might mention.

Now, Dr. McClure, in accepting this office and this gavel, this emblem of authority, I do so with the hope that I may preside with that consideration of the members of this Association and that dignity which have been enjoyed in the past year.

We will now be favored with a report of the Chairman of the Committee on Arrangements, Dr. L. C. Redmon.

L. C. REDMON, Lexington: The Committee on Arrangements begs leave to submit its report.

L. C. REDMON: You have been welcomed to the meeting by Dean Taylor and by Dr. Garr of the Fayette County Medical Society. The Committee on Arrangements hopes that you will be comfortable, that you will get plenty to eat, have a good place to sleep and a comfortable place to attend the sessions. If we have provided that, we are happy. (Applause.)

THE SECRETARY: It is a great pleasure to announce that more counties are represented in this morning's registration than have been present in any previous session but the one in Louisville six years ago. The attendance from Western Kentucky is much larger and more representative than in the previous sessions in the eastern part of the state. I hope the Eastern Kentucky men will take that to heart and return the courtesy when we go to Western Kentucky again.

I have one cablegram, from Dr. Granville S. Hanes:

"Regret cannot attend meeting. Friend seriously ill in Paris. Best wishes for profitable and enjoyable meeting." That was sent from London.

Our old friend and faithful member, Dr. E. Atchison Frazer, who is ill, wires us:

"Wish I could be with you. Not able to make grade."

PRESIDENT REDDICK: We will now proceed with the scientific program.

The following case reports were presented:

An Unusually Extensive Fecal Fistula, by Arvid O. Taylor, Maysville.

Torsion of a Normal Ovary and Tube With Rupture of the Ovary and Review of All Literature to Date, by J. D. Northcutt and Charles Baron, Covington, (read by Dr. Northcutt).

- Chronic Osteomyelitis, by William Marmaduke Brown, Lexington.

Spontaneous Expulsion of Uterine Fibroid by K. W. Brumback, Cynthiana.

An Atypical Case of Ruptured Subphrenic Abscess, by Edwin F. Sheppard, Jenkins

Poisoning by Wild Parsnip (Hemlock), by L. L. Terrell, Corbin.

These case reports were discussed by M. Casper, Louisville.

The following papers were presented in a Symposium on the Gastro-Intestinal and Biliary Tract:

The Clinical and Surgical Aspects of Diseases of the Biliary Tract, by Francis M. Massie, Lexington; The Clinical and Surgical Aspects of Diseases of the Duodenum, by Malcolm D. Thompson, Louisville; The Clinical and Surgical Aspects of Diseases of the Stomach, by Robert P. Ball, Harlan; discussed by Irvin Abell, Louisville, W. O. Bullock, Lexington; Wallace Frank, Louisville; Virgil Simpson, Louisville; J. Hadley Caldwell, Newport; M. Casper, Louisville.

The Oration in Surgery, Otitis Meningitis, An Abstract Review, was delivered by Sam B. Marks, Lexington.

The meeting adjourned at twelve-thirty o'clock.

## SECOND SCIENTIFIC SESSION

Tuesday Afternoon, September 8

The Second Scientific Session was called to order at 2 p. m. Tuesday, September 8, by President Reddick.

The following papers were presented:

The Injection Treatment of Hemorrhoids by William H. Mason, Murray; discussed by A. H. Barkley, Lexington; closing discussion by William H. Mason.

A Study of Some Phases of Dyspnea: A Case Report, by J. D. Williams, Ashland; discussed by S. C. Smith, Ashland; B. S. Rutherford, Bowling Green; closing discussion by J. D. Williams.

So-Called Modern Urinary Antiseptics, by Claude G. Hoffman, Louisville; discussed by Jethra Hancock, Louisville; closing discussion by Claude G. Hoffman.

Syndromes of Chronic Epidemic Encephalitis, by John J. Moren, Louisville; discussed by W. E. Gardner, Louisville; C. D. Townes, Louisville; closing discussion by John J. Moren.

General Practitioner, Surgeon, Patient, Their Relationship, by Edwin A. Stevens, Mayfield; discussed by John W. Scott, Lexington; Irvin Abell, Louisville; Arthur T. McCormack, Louisville; J. L. Toll, Lawrenceburg; L. H. South, Louisville; H. L. McLean, Wilmore; C. M. Eckler, Williamstown; W. L. Tyler, Owensboro; closing discussion by Edwin A. Stevens.

The meeting adjourned at four-forty o'clock.

## THIRD SCIENTIFIC SESSION

Wednesday Morning, September 9

The Third Scientific Session convened at 9:10 a. m., Wednesday, September 9, President Reddick presiding.

The following case reports were presented: Rat Bite Fever, by J. A. Orr, Paris.

Treatment of Congenital Syphilis With Bismuth Arsphenamine Sulphonate—Case Report, Gumma Treated With Above, by Thomas Marks, Lexington.

Acute Coronary Occlusion, by Emmet F. Horine, Louisville.

Bladder Tumor, by Henry J. Farbach, Louisville.

Phytobezoar, by Walter S. Wyatt, Lexington.

Chronic Deforming Arthritis: Treatment by Sympathetic Ganglionectomy, by R. Glen Spurling and Franklin Jelsma, Louisville (read by Dr. Spurling).

Chronic Meningococcic Meningitis, by Charles B. Stacy.

Benign Hydatid Mole, by Carl Norfleet.

The following papers were presented in a Symposium on Diseases of the Kidney:

Diagnosis and Treatment of Neoplasms of the Kidney, by James R. Stites, Louisville; Nephritis, Pathologic Types, by Elmer S. Maxwell, Lexington; Nephritis, Clinical Types, by C. W. Dowden, Louisville; Intravenous Urography, by Edward H. Ray, Lexington; discussed by Virgil Simpson, Louisville; E. Starr Judd, Rochester, Minnesota; Stephen C. McCoy, Louisville; W. T. Briggs, Lexington; closing discussion by Edward H. Ray.

E. R. Palmer, Louisville, presented an address in memory of J. A. Stucky, Lexington.

E. R. PALMER, SR., Louisville: Mr. President and Gentlemen of the Kentucky State Medical Association: It is my sorrowful duty as chairman of the committee, to present to you resolutions on the death of one of our most illustrious and beloved members, Dr. J. A. Stucky, of Lexington, Kentucky.

Dr. Stucky was one of nature's noblemen, a Christian gentleman of truly lovable character. He was a devoted husband and father, a loyal friend, an honorable citizen, fearless in his stand of what he considered to be the



best interests of the community in which he lived.

As a physician he was of the highest type, devoted to his profession, not because of the emoluments to be derived therefrom, but because through it he was enabled to devote his life to the relief of suffering humanity.

His greatest work, that which made him honored throughout the nation, that which will in the future cause him to be considered one of the outstanding medical figures of the era, was of such character that there was but little pecuniary reward derived therefrom. I speak of his great battle against trachoma, that terrible scourge that afflicts poor people of the eastern and mountain sections of our state. To him this was a work of love, carried on not with any hope of financial reward, not because of the honor and renown it brought to him, but because, like the Master in whose footsteps he followed, he caused the blind to see.

When as though a thunderbolt from the clear skies struck him down, an accident removes such a man from our midst, we poor mortals are prone to question the justice of the Deity. But this must not be done; it is natural and right that we should regret and mourn the untimely and tragic manner of his death; it is natural that we miss him now and will forever more, but we should rejoice in the firm belief in that undiscovered country from whose bourn no traveler returns, that he will receive the just reward that his self-sacrificing life has so truly earned, rejoice in the belief that on the judgment Day when he takes his stand before his Maker, the verdict will be: Well done, thou good and faithful servant.

Steadafast as we are in this belief, may we not truly ask: O Grave, where is thy victory, O Death, where is thy sting?

As a fitting tribute to our departed brother let us stand for a moment with heads bowed in silent prayer for the rest and expiation of his soul in the life hereafter.

The audience stood in silent tribute to the memory of Dr. J. A. Stucky.

The Oration in Medicine, Life Extension was delivered by B. S. Rutherford, Bowling Green.

The meeting adjourned at 12:15 o'clock.

#### FOURTH SCIENTIFIC SESSION

Wednesday Afternoon, September 9

The Fourth Scientific Session convened at 2:10 p. m., Vice-President W. Barnett Owen, Louisville, presiding.

The following papers were presented:

Recent Advances in Pre-Anesthetic Medication, by Harper E. Richey, Louisville; discussed by J. R. Wathen, Louisville; A. D. Willmoth, Louisville; M. Casper, Louisville

closing discussion by Harper E. Richey.

Ocular Manifestations of Systemic Disease, by Leo L. Jacobs, Covington; discussed by R. W. Bledsoe, Covington; closing discussion by Leo L. Jacobs.

Etiology in the Diagnosis of Heart Disease, by O. P. Nuckols, Pineville; discussed by John Harvey, Jr., Lexington; Virgil Simpson, Louisville; Emmet F. Horine, Louisville; closing discussion by O. P. Nuckols.

Certain Problems in the Treatment of Fractures, by Milton D. Flanary, Pikeville; discussed by Charles C. Garr, Lexington; W. Barnett Owen, Louisville; George A. Hendon, Louisville.

The Proper Use and Selection of Diuretics, by Garland L. Dyer, Buechel; discussed by Frank M. Stites, Louisville; John W. Scott, Lexington; closing discussion by Garland L. Dyer.

Pre and Post-Operative Treatment in Abdominal Surgery, by Irvin Abell, Louisville; discussed by John H. Blackburn, Bowling Green; Oscar O. Miller, Louisville; George A. Hendon, Louisville; Walter Humé, Louisville; J. Hadley Caldwell, Newport; closing discussion by Irvin Abell.

The meeting adjourned at 5:10 o'clock.

#### PUBLIC MEETING

Wednesday Evening, September 9

The Public Meeting was called to order at 8:15 p. m., W. B. McClure, Lexington, presiding. Dr. McClure introduced J. T. Reddick, Paducah, who delivered his presidential address.

The president of the Woman's Auxiliary to the Kentucky State Medical Association, Mrs. E. B. Houston, Murray, introduced the national president of the Woman's Auxiliary to the American Medical Association, Mrs. A. B. McGlothlan, St. Joseph, Mo., who delivered an address on Public Health Education.

E. Starr Judd, Rochester, Minn., President of the American Medical Association, was presented by Irvin Abell, Louisville, and delivered the Annual Oration, The Organization of the Medical Profession.

The meeting adjourned at 9:40 p. m.

#### FIFTH SCIENTIFIC SESSION

Thursday Morning, September 10

The Fifth Scientific Session convened at 9 a. m., Vice-President J. L. Atkinson, Campbellsville, presiding until President Reddick assumed the chair upon adjournment of the House of Delegates.

In a Symposium on Empyema, two papers were read: (a) Difficulties in the Diagnosis of Empyema, by G. G. Altman, Louisville (b) Roentgen Diagnosis of Empyema, by Vernon Blythe, Paducah; discussed by Paul A

Turner, Louisville; Ernest B. Bradley, Lexington; Donnan B. Harding, Lexington; Wallace Frank, Louisville; Oscar O. Miller, Louisville; Walter Hume, Louisville; John W. Scott, Lexington; closing discussion by G. G. Altman and Vernon Blythe.

The President-Elect, Philip F. Barbour, Louisville, was escorted to the platform by Louis Frank and J. H. Pritchett, Louisville and delivered a brief acceptance address.

A motion was offered by S. C. Smith, Ashland, that a committee consisting of the President, the Secretary and the Chairman of the Legislative Committee be appointed to contact doctors in the outlying sections of the state and solicit their support in determining from candidates for legislative office their attitude on health and medical practice legislation and whether they have pledged themselves to efforts to support legislation detrimental to public welfare.

The following papers were presented:

Clinical and Surgical Aspects of Acute Intestinal Obstruction, by John H. Blackburn, Bowling Green; discussed by C. G. Daugherty, Paris; S. C. Smith, Ashland; G. A. Hendon, Louisville; S. C. Smith, Thomas J. Ray, Lexington; G. G. Altman, Louisville; W. O. Bullock, Lexington; closing discussion by J. H. Blackburn.

Diagnosis and Treatment of Latent Syphilis, by C. Brooks Willmott, Louisville.

The Secondary Anemias in Children, by James W. Bruce, Louisville; discussed by Philip F. Barbour, Louisville; closing discussion by James W. Bruce.

Reasons Why Thyroidectomy Should Not Be Postponed, by J. Farra Van Meter, Lexington; discussion by W. O. Johnson, Louisville; Walter Hume, Louisville; closing discussion by J. Farra Van Meter.

The meeting adjourned at 12:20 o'clock.

#### SIXTH SCIENTIFIC SESSION

Thursday Afternoon, September 10

The Sixth Scientific Session convened at 9 o'clock. President Reddick presiding.

The following papers were presented:

Contraception—Review of Methods and Indications, by Scott D. Breckenridge, Lexington; discussed by Henry M. Rubel, Louisville; W. O. Johnson, Louisville; Edward Speidel, Louisville; Harry A. Davidson, Louisville; closing discussion by Scott D. Breckenridge.

Postpartum Care, by Alice N. Pickett, Louisville; discussed by S. S. Parks, Lexington; W. T. McConnell, Louisville; L. C. Redmon, Lexington; closing discussion by Alice N. Pickett.

Eclampsia, A Preventable Disease, by Edward Speidel, Louisville; discussed by A. J. Whitehouse, Lexington; Henry M. Rubel

Louisville; closing discussion by Edward Speidel.

The meeting adjourned sine die at 3:30 o'clock.

A. T. McCORMACK,  
Secretary.

#### MINUTES OF THE EIGHTY-FIRST ANNUAL SESSION OF THE HOUSE OF DELEGATES OF THE KENTUCKY STATE MEDICAL ASSOCIATION, HELD IN LEXINGTON SEPTEMBER 7-10, 1931.

Monday Afternoon, September 7, 1931.

The first session of the House of Delegates of the Eighty-First Annual Meeting of the Kentucky State Medical Association, held at the University of Kentucky, Lexington, September 7-10, 1931, convened at 2:15 o'clock, the President, W. B. McClure, Lexington, presiding.

PRESIDENT MCCLURE: The House of Delegates will please be in order. The first order of business is the report of the Committee on Credentials, H. B. Scott, Chairman.

H. B. SCOTT, Louisville: I present the roll call as the report of the committee.

PRESIDENT MCCLURE: The Secretary will call the roll.

The Secretary called the roll.

PRESIDENT MCCLURE: There being a quorum present, we will proceed with the regular order, the next item being the minutes of the 1930 meeting.

R. L. WOODARD, Louisville: The minutes have been published. I move we dispense with the reading of them.

The motion was seconded and unanimously carried.

PRESIDENT MCCLURE: The Secretary will read the list of Reference Committees.

SECRETARY MCCORMACK: The following are the Reference Committee appointments: Committee on Credentials:

H. B. Scott, Louisville, Chairman

R. L. Woodard, Hopkinsville

J. Tom Price, Harrodsburg

Committee on Scientific Work:

J. T. Reddick, Paducah, Chairman

A. T. McCormack, Louisville

C. N. Kavanaugh, Lexington

Medico-Legal Committee:

J. B. Lukins, Louisville, Chairman

Marshall McDowell, Cynthiana

A. T. McCormack, Louisville

Committee on Crippled Children:

J. D. Trawick, Louisville, Chairman

W. Barnett Owen, Louisville

C. C. Garr, Lexington

Orville R. Miller, Louisville

Committee on Journal:



- Oscar E. Bloch, Louisville, Chairman  
 H. M. Meredith, Scottsville  
 J. D. Williams, Ashland
- Committee on Legislation and Public Policy  
 Irvin Abell, Louisville, Chairman  
 J. D. Sory, Madisonville  
 Claude Youtsey, Newport  
 W. B. McClure, Lexington (ex officio)  
 A. T. McCormack, Louisville (ex officio)
- Committee on Miscellaneous Business:  
 H. G. Reynolds, Paducah, Chairman  
 W. A. Page, Barlow  
 Wilgus Bach, Jackson
- Committee on Publicity:  
 C. A. Vance, Lexington, Chairman  
 E. S. Maxwell, Lexington  
 J. S. Chambers, Lexington  
 Rev. Dr. T. W. Rainey, Lexington  
 Hon. T. R. Underwood, Lexington
- Committee on Scientific and Commercial Exhibits:  
 C. A. Vance, Lexington, Chairman  
 W. M. Martin, Harlan  
 C. C. Howard, Glasgow
- Committee on Medical Education:  
 J. W. Scott, Lexington, Chairman  
 J. G. Gaither, Hopkinsville  
 J. D. Floyd, Richmond
- Committee on Periodic Health Examination  
 Frank M. Stites, Louisville, Chairman  
 J. F. Hahs, LaCenter  
 W. O. Hopper, Perryville
- Committee on Hospital Standardization:  
 J. Garland Sherrill, Louisville, Chairman  
 J. D. Northcutt, Covington  
 J. M. Salmon, Ashland  
 W. A. Weldon, Glasgow  
 W. B. McClure, Lexington, (ex-officio)
- Committee on Workmen's Compensation Law.  
 Frank P. Strickler, Louisville, Chairman  
 James S. Salmon, Ashland  
 H. K. Buttermore, Liggett  
 M. D. Flanary, Pikeville  
 R. E. Smith, Henderson
- Heart Committee:  
 E. F. Horine, Louisville, Chairman  
 Austin Bell, Hopkinsville  
 J. W. Kincaid, Catlettsburg  
 Walter Byrne, Jr., Russellville  
 John W. Scott, Lexington  
 J. Rowan Morrison, Louisville  
 W. L. Tyler, Owensboro  
 Silas Griffin, Henderson
- Committee on Control of Cancer:  
 Wallace Frank, Louisville, Chairman  
 C. A. Vance, Lexington  
 P. H. Stewart, Paducah  
 A. W. Davis, Madisonville  
 Paul Gronnerud, Pikeville
- Committee on Health Problems in Education:  
 W. B. Moore, Cynthiana, Chairman  
 J. V. Johnson, Georgetown  
 H. M. Bertram, Vanceburg
- Committee on County Hospitals:  
 C. C. Howard, Glasgow, Chairman  
 W. J. Sweeney, Liberty  
 J. Tom Price, Harrodsburg
- Committee on Medical Ethics:  
 R. E. Smith, Henderson, Chairman  
 O. R. Miller, Louisville  
 Lee Chestnut, Mt. Vernon
- Auditing Committee:  
 H. B. Scott, Louisville, Chairman  
 J. B. O'Brannon, Mt. Carmel  
 W. L. Ozment, Leitchfield
- Committee on Resolutions:  
 H. M. Meredith, Scottsville, Chairman  
 Henry Smith, Rochester  
 J. B. Wadlington, Princeton
- Committee on Medical Students Loan Fund:  
 Granville S. Hanes, Louisville, Chairman  
 W. O. Bullock, Lexington  
 Irvin Abell, Louisville  
 John W. Moore, Louisville  
 R. E. Smith, Henderson  
 E. W. Jackson, Paducah  
 E. S. Moss, Williamsburg
- Committee on Post-Graduate Course:  
 P. F. Barbour, Louisville, Chairman  
 G. A. Hendon, Louisville  
 E. O. Grant, Louisville
- Committee on Woman's Auxiliary:  
 Mrs. E. B. Houston, Murray, Chairman  
 Mrs. G. A. Hendon, Louisville  
 Mrs. P. E. Blackerby, Louisville
- Committee on Report of Council:  
 C. G. Daugherty, Paris, Chairman  
 H. H. Hunt, Mayfield  
 E. L. Gates, Greenville
- Committee on Military Medicine and Medical Veterans' Affairs:  
 R. L. Woodard, Louisville, Chairman  
 S. C. Smith, Ashland  
 E. C. Walter, Mayfield
- Committee on Prevention of Goiter:  
 R. R. Elmore, Louisville, Chairman  
 W. I. Hume, Louisville  
 P. C. Sanders, Danville  
 J. N. Bailey, Paducah  
 J. W. York, Canmer
- PRESIDENT MCCLURE: Next in order is a report on Scientific Work, by J. T. Reddick Paducah, Chairman.
- J. T. REDDICK, Paducah: Dr. Kavanaugh did all the work of that committee, and if he is present I should like for him to make the report.
- C. N. KAVANAUGH, Lexington: I submit the program as the committee.
- LOUIS FRANK, Louisville: I move it be approved and accepted.
- SECRETARY MCCORMACK: Will Dr. Frank modify his motion that the report of the Committee on Scientific Work be made the program of the meeting, with the understanding that all those essayists who are to

report cases have been notified by Dr. Kavanaugh through our office as to the time limit on their papers. That time limit varies with regard to various papers by agreement between them, so that the time can actually be occupied. The time limit will be enforced, as each member has been notified.

LOUIS FRANK: I will accept that modification.

The motion was seconded and carried.

PRESIDENT MCCLURE: Next is the report on arrangements, by L. C. Redmon, Chairman.

L. C. REDMON, Lexington: The Arrangements Committee have planned definitely for this meeting.

Dr. Redmon announced meeting places, housing facilities, entertainments for the ladies, etc.

PRESIDENT MCCLURE: I must plead ignorance as to a provision in the By-laws which the Secretary says provides for a report of the President. I am sure you are glad to hear that the President has no report to make, and we will proceed at once to the next item, which is the Report of the Council. Dr. McChord is Chairman, but I believe by arrangement Dr. Gardner is to read the report.

W. E. GARDNER, Louisville: The Council has not fully completed its report and will probably finish its deliberations following this meeting of the House. I think we can have that report ready tonight.

PRESIDENT MCCLURE: Treasurer's report.

SECRETARY MCCORMACK: The report of the Treasurer is published in the Journal in full.

LOUIS FRANK: I move it be accepted.

The motion was seconded and carried unanimously.

PRESIDENT MCCLURE: Secretary's report.

#### REPORT OF SECRETARY

SECRETARY MCCORMACK: During the past year I have had the privilege of meeting with county and district societies in almost every section of the state and of conferences and consultations with individual physicians in their offices or mine.

I am convinced that one of the most serious evils that is threatening the profession in a few sections is the division of fees. I therefore desire to call the attention of the House of Delegates to the provision of Section 1, Chapter 1 of the By-laws in regard to membership, which reads as follows:

"All members of the component county societies shall be privileged to attend all meetings and take part in all the proceedings of the Annual Session, and shall be eligible to any office within the gift of the Association. PROVIDED that no physician may become a member of any county society unless he

signs and keeps inviolate the following pledge:

I hereby promise upon my honor as a gentleman that I will not as long as I am a member of the Kentucky State Medical Association practice division of fees in any form, neither by collecting fees from others referring patients to me nor by permitting them to collect any fees for me; nor will I make joint fees with physicians or surgeons referring patients to me for operation or consultation; neither will I in any way, directly or indirectly, compensate anyone referring patients to me, nor will I utilize any man as an assistant as a subterfuge for this purpose.

In addition to the division of fees being a violation of the obligation of every member of the State Medical Association, it is a violation of the laws of the Commonwealth, and it is considered such a heinous violation that it is specifically provided 'the court trying the case shall, upon conviction, for the second offense, declare, as a part of the judgment entered upon the record of the court trying the case, that the license of such physician or surgeon to practice medicine or surgery in this Commonwealth be cancelled, and the license so cancelled shall never be renewed in this Commonwealth. In order that the whole profession may be put on notice as to the provisions of this law, I am quoting it in full from Chapter 35 of the Acts of the General Assembly of 1916:

"AN ACT to prohibit the buying or selling of patients by physicians or surgeons or other persons, and defining what shall constitute the buying or selling of patients, and fixing the punishment for a violation of this Act.

Be it enacted by the General Assembly of the Commonwealth of Kentucky:

1. That hereafter any physician, surgeon or any other person, who carries, sends, or is in any manner instrumental or aids and abets in causing a patient to go to another physician or surgeon for surgical operation or advice as to or the treatment of any physical or mental disease, injury or ailment, and receives therefor from such other physician or surgeon any money, gift, or other thing of value for having furnished such patient or who has any agreement or understanding with such physician or surgeon to receive therefor any money, gift, or other thing of value whatsoever from such physician or surgeon, without the knowledge and consent of the patient previously obtained, shall be guilty of selling the patient within the meaning of this Act.

2. Any physician, surgeon, or other person who shall violate Section One of this Act shall be guilty of a misdemeanor and fined not less than fifty (\$50) nor more



than one hundred dollars (\$100) for each offense.

3. That hereafter any physician, surgeon or any other person, who knowingly receives any patient, so carried, sent or caused to go to him for any surgical operation or advice as to or treatment of any physical or mental disease, injury or ailment, and such physician, surgeon, or other person pays any money, gift or thing of value, or promises any compensation whatsoever therefor to such physician, surgeon or other person so sending or carrying or aiding and abetting in getting such patient to him, without the knowledge or consent of the patient previously obtained, shall be guilty of buying the patient within the meaning of this Act.

4. That any person who buys a patient within the meaning of Section Three of this Act shall be guilty of a misdemeanor and upon conviction shall be fined not less than fifty dollars (\$50) nor more than one hundred (\$100) for each offense, and if he be a physician or surgeon, shall, upon conviction of a second offense, forfeit his license to practice medicine and surgery in this Commonwealth; the court trying the case shall, upon conviction for the second offense, declare, as a part of the judgment entered upon the record of the court trying the case, that the license of such physician or surgeon to practice medicine or surgery in this Commonwealth be cancelled, and the license so cancelled shall never be renewed in this Commonwealth.

5. The person selling the patient and guilty of the offense under Section One of this Act shall not be deemed an accomplice of the physician, surgeon, or other person who buys such patient, as provided in Section Three thereof, and may be compelled, as a witness, to disclose all the facts relative to such selling of the patient by him and the purchase thereof by the physician or other person under Section Two thereof, but no such testimony given shall be used in any prosecution against the person so testifying and he shall stand discharged of any act so disclosed by his testimony.

6. This Act shall take effect from and after its passage.

Approved March 23, 1916."

I regret to bring before the Association again the continued violation of the state and federal narcotic and prohibition laws by a few doctors, constituting an extremely small minority of the profession, being its careless or criminal element. It is gratifying that this Association, at its Paducah Session, prior to the passage of the Eighteenth Amendment, protested against the inclusion of the word 'medicinal' in that Amendment on the ground that it would substitute the low-grade physician for the saloon-keeper. This

fear has been realized to a certain extent. Under laws recently passed by the Federal Congress, the State Boards of Medical Registration are given formal notice of violation of these laws and are furnished with a transcript of the evidence rendered against the offending physician. The profession should understand generally that under the laws of Kentucky and the rules and regulations of the State Board of Health, a conviction of violation of the federal or state narcotic or prohibition laws is considered as a conviction of a felony involving moral turpitude: that the revocation of narcotic or alcohol permits may constitute such grossly unprofessional and dishonorable conduct as tends to deceive and defraud the public, and that evidence which shows chronic or persistent inebriety or drug addiction necessitates suspension or revocation of the offender's certificate to practice medicine. More than thirty such cases are at present pending before the State Board of Health. Several physicians are in the federal penitentiary.

I believe that the organized profession should again go on record as condemning violation of these laws as long as they are on the statute books, and should urge registration authorities in this state to proceed without fear or favor in the revocation of certificates where evidence of violation is produced, that the public confidence in the medical profession shall not be undermined and destroyed.

We are the recognized and organized representatives in Kentucky of the greatest profession that serves our public. We can take great pride in the fact that within the memory of the older ones amongst us the span of life has been almost doubled through our discoveries and ministrations and those of our associates elsewhere. Pestilential diseases have practically disappeared, and many causes of death which were formerly endemic in our Commonwealth are rapidly being reduced to a minimum. Every physician worthy of the name is an upright, honorable, law-abiding citizen, and I am confident that it is the purpose of the medical profession of Kentucky to make it impossible for others to remain within our ranks.

The work of the office has been made extremely pleasant during this year, as in previous years, by the splendid cooperation received from the Secretaries of the County Societies, the members of the Council, and the Officers of the Association, and the fine advice and support that have come to the policies of the Association from the entire profession of the state. It is important for us to remember that it is the purpose of the Association to federate and bring into compact organization the entire medical profession of the State of Kentucky with a view to

the extension of medical knowledge, to the advancement of medical science, to the elevation of the standards of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interests and to the enlightenment and direction of public opinion in regard to the great problems of state medicine, so that the profession may become more capable and honorable within itself, more useful to the public in the prevention and cure of disease and in prolonging and adding comfort to life.

LOUIS FRANK: I move the House of Delegates receive the report and adopt the recommendations as expressed in it.

The motion was seconded and unanimously carried.

PRESIDENT MCCLURE: The next order is the Reports of Councilors by Districts.

#### REPORT OF COUNCILOR, FIRST DISTRICT

V. A. STILLEY, Benton: Notwithstanding we have lost some members by death, it is very gratifying to me to be able to report a net gain of nine members in the First District.

We have a splendid district society which comprises all the counties in the First District. This society meets every three months in different parts of the District. These meetings are well attended and much interest manifested.

We have a four-county medical society which meets monthly, with a good attendance and good interest. Also, most of the counties in the First District have their regular medical society meetings. Much of the renewed interest and success of the meetings in some of the counties, I believe, is due to the influence of the Woman's Auxiliary. We have had the pleasure of the presence of our efficient Secretary and his estimable wife with us at two meetings this fall and at one of these visits we reorganized the Woman's Auxiliary in one of our largest counties in the First District, which is both pleasing and gratifying.

We feel that the profession in the First District, taking all things into consideration, is in better shape than for some time.

#### REPORT OF COUNCILOR, THIRD DISTRICT

C. C. HOWARD, Glasgow: The Third District I think is very well organized. It is about like it was last year in membership and attendance. Our district meetings are centrally located. We hold them at Bowling Green. We have held a few of the meetings at Glasgow, and also down at Russellville.

The county societies are fairly well organized. A few counties are not having any meetings. I think that is a mistake, but they

have only a very few members and they are meeting with adjoining counties. We are trying to hold each county society together; if you break that up you ruin the family.

I think there has been a gradual improvement in our district. Of course, the depression hit us just as it hit everyone else. I think the doctor has adjusted himself to it as well as anyone. I often think perhaps he is imposed on, however, more than he should be. It is like the Red Cross; it is a great thing to have them, but it is going to be pretty hard to get away from them. I think we are getting along very well in our district.

#### REPORT OF COUNCILOR, FOURTH DISTRICT

J. I. GREENWELL, New Haven: Mr. Chairman and Delegates: The Fourth District is the poorest organized of any in the state, I am told, and so far I have accomplished very little in reorganizing it. It seems very hard to get the doctors to attend the meetings of the county society, as the Muldraughs Hill Medical Society meets four times each year at Elizabethtown, and practically all the doctors of the Fourth District are members of this society and prefer to attend these meetings instead of the county society.

We had a Councilor's meeting in Elizabethtown in May, with about twenty-five doctors in attendance, some from each county in this district. We had a splendid program.

I have been able lately to assist in the reorganization of a splendid society in Grayson County, most of the doctors in this county now being members of the county society. Grayson County now has an all-time health officer, and I am expecting them to do some good work this coming year.

The list of members remains practically the same as last year. I hope to be able to make a better report at our next meeting.

#### REPORT OF COUNCILOR, FIFTH DISTRICT

W. E. GARDNER, Louisville: The Councilor from the Fifth District, has no formal report to make. The Fifth District, as you know, is composed of Jefferson County and several other counties outside of Jefferson. These counties, with the exception of Trimble and Gallatin, have active medical societies. They are not very regular in their attendance, of course, in some of the smaller counties, but we are trying to stimulate interest from time to time and get them to hold meetings at least quarterly, if not every month.

This year we have organized the Fifth Councilor's District Society, which will meet at Carrollton twice a year, possibly in May and November. We believe the organization of this district society will stimulate interest even in the county societies, and although they may not be holding regular meetings they will attend the district society and per-



haps it will stimulate the payment of dues and more formal meetings of the county societies.

The profession is interested, there is a feeling of good fellowship and congeniality among the members of this district, and I feel sure that the district society will help still further to promote this feeling.

Of course, all of the members of the respective county societies in this district are eligible to membership in the Fifth Councilor District, and we hope to have a good attendance at the meeting at Carrollton, possibly in November.

#### REPORT OF COUNCILOR, SIXTH DISTRICT

R. C. McCHORD, Lebanon: Mr. Chairman, I regret very much to say that so far as our county medical society work is concerned, it has been not what it ought to be, but every county in my district is a member of one of three district medical societies and every member in those counties is a member, therefore, of an active society.

Most of the work, or the best work, done in my district is done through either one or the other of these district medical societies, and I must say that whilst the counties have depended to a great extent on their district societies, the work has been very satisfactory.

SECRETARY McCORMACK: At a recent meeting of the American Medical Association, the Secretary of the Association reported as to the danger of loss of interest in state societies by regional meetings of the districts in which they are located, and especially loss of interest in the work of the county society because of the meetings of district societies. There isn't any question but that the district society has a definite place; it is provided for in the scheme of organization, just as the sectional societies are provided for in the constitution of the American Medical Association, but the Secretary has suggested the advisability of an amendment to the By-Laws providing that no member of a county society shall be eligible to membership in a district society unless and until this county society holds at least four meetings in each annual year. The reason for this is obvious. Under the plan of organization of the American Medical Association, the whole basis of the scheme is the autonomy of the county society; the county society should have charge of the affairs in its own county, and they should not be delegated to district or general societies, because if they are, the problems of a particular county are frequently different from its adjoining counties and they may not have the proper method of solution; unless they are reasoned out together, frequently they will not be handled at all.

Another thing that is important is that the

members of the county society who are the leaders in the profession always attend the meetings of the district society and of the state association, but there are considerable numbers of our members who are like pigeons, they don't fly far and don't go to any other meeting but their county society meeting, and they don't go to it unless there are special inducements offered by the secretary or the program committee or in some other way.

The question of the preservation of the county society is, in the minds of the trustees and the officials of the American Medical Association, as in the minds of every thoughtful physician, the most important thing that is to come before the profession in the near future. We don't want to revert to the condition that we used to have where there was a mental aristocracy in medicine that met—and was the only group that did meet—and that did everything. There was a considerable degree of separation between those who attended the American Medical Association and took part in its functions, at that time its membership being only 2,500 or 3,000, as in the profession of this state before the reorganization there were never more than 300 members. It is important that we keep ourselves firmly based on the representative idea. We are the delegates here from our county societies, and it is our duty to go back home and work up interest in those county societies.

I wish every member of the profession of the state could attend the meetings of the county society in Harrison County. I have had the privilege almost every year of being present at one or two of their meetings and they are all together, almost every doctor is present every time, as is the case in Harlan County and a number of the good counties of the state where real progress in medicine is being made and the best practice is being carried through completely.

It is particularly important that this sort of organization be formed where young men are coming into the profession in the county, that they may have professional contact with their older brethren and that their older brethren may have contact with them.

I don't feel I can emphasize too strongly the feeling on the part of everybody who has taken active part in medical organization in this country, that we are going to be successful in the future as we have been in the past years of this century in proportion as we preserve the integrity and influence and efficiency of our county societies.

LOUIS FRANK, Louisville: What seems to be the cause of lack of attendance at the county societies?

SECRETARY McCORMACK: As near as I can figure it there are two reasons. In the first

place, in a good many counties the number is very small. In Todd County, for example, when the county society was organized they had twenty-seven members, and now six physicians are practicing in the county. They feel their meetings are so very much smaller than they used to be that they go over to Hopkinsville where they have a corking good meeting, and frequently they are forgetful of their own interests.

There is but one way to have a county society, and that is to have a secretary. The President-Elect of this Association has been Secretary of the McCracken County Medical Society since the memory of man runneth not to the contrary. I don't suppose there if any man now living in that county who was living when he was elected Secretary. They have never had a failure in their program; they always have a good one, because their Secretary efficiently gets it up. If someone else doesn't have a paper he has one. They know that, and in self-defense they write papers themselves. The secretary of the county society is the secret of success in every county.

PRESIDENT McCURE: On the question of district versus county societies, if I may be pardoned for interjecting one thought, I am wondering if we here in Central Kentucky didn't start the ball rolling in the proper direction when the Central Kentucky Medical Society voluntarily disbanded because it felt that it had outlived its usefulness. I see three members of that society here, and I am wondering if Dr. Vance or Dr. Daugherty or Dr. Scott won't speak of the disintegration of that Central Kentucky Society voluntarily.

C. G. DAUGHERTY, Paris: We have had such a good county society ever since I organized it about twenty years ago and kept it going, that we have not had any need for a district society, until there was a county society that wasn't doing its work, and when it got to working there wasn't any need for the district society to continue and therefore it died a natural death.

C. A. VANCE, Lexington: It didn't voluntarily die; there wasn't any help for it at all.

PRESIDENT McCURE: Why?

C. A. VANCE: Because, I believe, the county societies are doing better work than when that was organized.

#### REPORT OF COUNCILOR, SEVENTH DISTRICT

VIRGIL KINNAIRD, Lancaster: The Seventh District has increased by one member. In July we had a good district councilor's meeting at Crab Orchard. The program was furnished by Louisville men, and we had a good attendance. That is all I have to report, except that in the Seventh District this year the State Board of Health has organized three all-time county health units, Wayne County, Pu-

laski County and Rockcastle County, and with Lincoln County we now have four all-time county health units.

#### REPORT OF COUNCILOR, NINTH DISTRICT

S. C. SMITH, Ashland: So far as I know everything is going along well. At our Councilor's meeting in January, a request was made of all the secretaries of the county societies to notify the councilor when they hold meetings. I have had a notice from the Lawrence County Society only; no other county notified me, therefore I did not attend. As a matter of fact, I wasn't too anxious to attend. As Andy says, this repression has got me, and I didn't want to go, but if they had sent me a notice I would have gone. I don't know how the affairs of the Ninth District are at the present time.

#### REPORT OF COUNCILOR, TENTH DISTRICT

C. A. VANCE, Lexington: According to the paid-up membership for 1931, the Tenth District has 236 members. This is five more than were reported in 1930 and one more than was reported for 1929, so I feel that the work and membership in the Tenth District has not gone back, but has probably improved some in the last three or four years. There are possibly a few eligible non-members. We have made every effort to get them in the county societies, but have not been entirely successful. Bourbon, Clark, Fayette, Madison and Scott County Societies hold regular monthly meetings, and they are generally well attended, with good programs. Bath, Breathitt, Estill, Jessamine, Lee, Menifee, Montgomery, Morgan, Powell, Rowan, Wolfe and Woodford County Societies hold occasional meetings. I have attended many of these meetings in the past year, and I find that the profession generally is enthusiastic about the State Association, and all are willing to help out in any way they can. I have not heard of any malpractice suits brought against any of our members in the Tenth District during the past year. They have always given me a hearty welcome and seemed pleased to have their Councilor attend the meetings with them.

In speaking about the district meetings, I firmly believe there isn't much place for district meetings when the county societies are well organized and well attended, and I feel that we would do much better to have good county society meetings than district meetings. We have had only one Tenth Councilor District meeting since I have been a Councilor. That was very well attended. It was two years ago, and we had about 125 present.

I believe the best way to get a good state society is to have a good secretary in every county society and in that way have a good



county society; then you have a good state society.

#### REPORT OF COUNCILOR, ELEVENTH DISTRICT

W. M. MARTIN, Harlan: I haven't any written report, but I am glad to report that the condition of my District is very good. It has held up very well under this depression. Most of our doctors are living at least, and having good meetings. Of course, there is a part of my district that I am never able to get to; Dr. McCormack looks after that anyway; he can still ride horseback, and I can't.

I am sure that our various county medical societies are progressing nicely.

One thing that I am glad to announce to the House of Delegates is that we have about got our malpractice suits stopped. We haven't had any malpractice suits in the last year. I am sure it is a pleasure for this body of men to hear that, because that saves us money.

Another thing that I am very proud to announce to the House of Delegates is that we are going to send our old warhorse Senator back to Frankfort. I am sure you will be very glad of that because of the fact that he has always stood by this organization for the twenty years he has been in the Senate. He has gone back this time with the greatest majority that he has ever gotten. (Applause). I am sure that most of you, at least, understand the position that Senator Brock has always taken toward the State Board of Health and the State Medical Association. Those of you who went to Frankfort in 1926, 1928 and 1930 saw the fight Senator Brock made for us. (Applause).

PRESIDENT MCCLURE: Dr. Trawick, who is Chairman of the Committee on Crippled Children, requests that he be heard now because of the fact that he has to leave immediately.

A motion was regularly made, seconded, and carried, that Dr. Trawick's report be presented.

#### REPORT OF COMMITTEE ON CRIPPLED CHILDREN

J. D. TRAWICK, Louisville: From September 1, 1930, to September 1, 1931, the Kentucky Crippled Children Commission has committed to the hospitals for treatment 780 indigent crippled children. This number includes 374 new cases and 406 cases that have been previously treated and require a second operation or further attention in the way of corrective appliances.

The fact that 406 cases have come back does not indicate at all that there have been mistakes or that there has been lack of correction. It must be remembered that there are many cases that come through the Commission's hands that require sometimes four operations, sometimes six, sometimes eight various operations. The fact that more children are com-

ing back for their second and third and fourth visits than have been in the classification of new cases indicates an increased confidence in the work of the Commission.

One of the Commission's chief problems is the handling of cases that need frequent periods of hospitalization and new braces as the old ones are outgrown. A large sum of money is spent each year upon brace repairs and renewals, exclusive of the amount spent for hospital treatment.

Upon September 1, 1931, there were 197 Commission cases in the orthopedic wards of hospitals in Ashland, Lexington and Louisville. Two thousand seven hundred and thirty-seven indigent crippled children have been treated by the Commission since its creation in 1925. These cases come from every county in the state as the Commission's clinics are planned to reach each section of Kentucky.

During the past year, sixteen free diagnostic clinics have been held in the following localities: Glasgow, Harlan, Central City, Mt. Sterling, Harrodsburg, Maysville, Bowling Green, Ashland, Campbellsville, Grayson, Owensboro and Covington. Each of the two last named towns had three clinics during the year, because through the efforts of local organizations, quarterly follow-up clinics have been established in Covington and Owensboro. These clinics are planned and financed by the local communities, working under the direction of the Crippled Children Commission. Beginning as an experiment, they are proving successful for several reasons. They serve to promote and continue local interest in the work for crippled children, and they provide close supervision and periodic examination for children who have been dismissed from the hospitals wearing braces or with instructions regarding home treatment. In Ashland a weekly clinic is held in the hospital, and physiotherapy and instructions in corrective exercises are given by a trained worker. There is good attendance at these regular clinics and splendid results are being obtained.

One thousand, one hundred and ninety-nine cases were examined at the sixteen clinics, including 478 old cases, asked to attend the clinics for the purpose of reexamination and 721 new cases not previously examined or treated. Intensive field work was done in each district by the Commission's nurses, and it is gratifying to note that even more interest than usual has been shown in the clinics this summer. Members of civic organizations and the medical profession have been exceptionally cooperative. The additional number of county health departments and Red Cross units has also been of help to the Commission's field workers in locating crippled children and keeping in touch with

them following their dismissal from the hospitals.

One of the things being appreciated more and more by those of us holding these clinics is the cooperation of the medical profession in the various places where the clinics are being held. Without the cooperation of the profession, we men who hold the clinics feel that we are carrying too much of a burden, too much of a load. Your cooperation helps us and encourages us tremendously.

In classifying the deformities of cases examined at the clinics, it is found that infantile paralysis still constitutes practically thirty per cent of the crippling causes, while congenital deformities come second, with seventeen per cent.

Classification of deformities of children examined at the diagnostic clinics held during the past year is given as follows in the accompanying table:

Infantile paralysis .....	357
Spastic paralysis .....	100
Other paralysis .....	65
Congenital deformities .....	213
Bone tuberculosis .....	58
Injuries .....	80
Osteomyelitis .....	56
Scoliosis .....	19
Arthritis .....	35
Rickets .....	34
Non-orthopedic and mental.....	97
Miscellaneous .....	85
Total .....	1,199

CLINICS HELD BY THE KENTUCKY CRIPPLED CHILDREN COMMISSION DURING THE YEAR OF SEPTEMBER 1, 1930, TO SEPTEMBER 1, 1931

Glasgow, Oct. 2, 1930—Allen, Barren, Metcalf, Monroe, Hart, Edmonson, Cumberland counties; total examined, 43, by Dr. Trawick.

Harlan, Nov. 7, 1930—Harlan County; total examined, 65, by Dr. Trawick.

Owensboro, Nov. 21, 1930—Daviness County; total examined, 75, by Dr. Owen.

Covington, Jan. 28, 1931—Kenton, Campbell, Boone, Grant Counties; total examined, 41, by Dr. Brown.

Owensboro, March 10, 1931—Daviness County; total examined, 53, by Dr. Owen.

Covington, April 10, 1931—Campbell, Kenton Counties; total examined, 45, by Dr. Brown.

Central City, May 7, 1931—Muhlenberg, McLean, Hopkins, Ohio, Butler Counties; total examined, 140, by Dr. Miller.

Mt. Sterling, May 20, 1931—Bath, Clark, Wolf, Montgomery, Menifee, Rowan, Powell Counties; total examined, 109, by Dr. Brown.

Harrodsburg, June 3, 1931—Anderson, Boyle, Casey, Franklin, Garrard, Henry, Lincoln, Mercer, Shelby Counties; totaled examined, 134, by Dr. Owen.

Maysville, June 10, 1931—Bracken, Flem-

ing, Lewis, Mason, Nicholas, Robertson Counties; total examined, 57, by Dr. Garr.

Owensboro, June 23, 1931—Daviness County; total examined, 70, by Dr. Owen.

Covington, July 8, 1931—Campbell, Kenton Counties; total examined, 48, by Dr. Brown.

Bowling Green, July 24, 1931—Allen, Edmonson, Simpson, Todd, Logan, Warren Counties; total examined, 96, by Dr. Miller.

Ashland, July 29, 1931—Boyd, Greenup, Lawrence Counties; total examined, 67, by Dr. Jones.

Campbellsville, August 12, 1931—Green, Adair, Taylor, Marion, Russell Counties; total examined, 100, by Dr. Strickler.

Grayson, August 19, 1931—Carter, Elliott, Greenup; total examined, 56, by Dr. Jones.

Total number of clinics held .....

Total number of counties included....

Total number of cases examined....

Quarterly clinics have been established at Owensboro and Covington through the efforts of the Owensboro Rotary Club and Mary Kendall Home, and the Covington and Newport Rotary Clubs. These organizations finance the work locally and employ a nurse to handle follow-up work among the children treated by the Commission.

Aside from stressing again the cooperation of the medical profession and of the civic organizations, I think the committee has hardly anything else to add except that the work is necessarily slow. The pioneering that the nurses are doing in going about through the counties is gradually producing results, and the cases are coming in now almost as rapidly as the hospitals can take care of them.

SECRETARY McCORMACK: Permit me to suggest for discussion, Mr. President, the thought of the principle involved in this report and in this work, because it seems that it is going to be responsible for a considerable extension into this same and other fields.

I was present last year at a hearing before a joint committee of the House and Senate on a bill to make the crippled children's work national through federal aid, and I heard the discussion that took place in that committee—it interested me very much indeed.

I do not believe there has been a finer piece of medical or medico-sociological work done anywhere than has been done by the Kentucky Crippled Children's Commission. It has been done largely under the guidance of this Association and particularly of those of its members who limit their practice to orthopedic surgery. It is being done without an adverse criticism by anybody. It is an outstanding piece of work, so outstanding that those present, particularly the social workers' group, made the suggestion that it should be extended to many other fields of medicine; that the crippled children had re-



ceived a degree of relief where they had before been systematically neglected, that there were other large groups of diseased people, the hard of hearing, the blind, those that suffered from the ill effects of hernia, large groups of cases were suggested as needing this sort of specially organized service that would go to them and find them and bring them into clinics, if they were unable to pay their expenses, that would carry through the treatment.

It seems to me that the suggestion of that sort of activity is worthy of our consideration in this connection. How far do we want to go in doing this thing? What other form of organization can we make that would enable us to take care of those very much larger groups, because the crippled children's group consists of some 6,000 to 12,000 in Kentucky. How far do we propose to go in the development of other commissions for the treatment and alleviation of the conditions in the larger groups that compose the disabled, that are remediable to a considerable degree?

There is no question about the approval of this work, but for it and following it are we willing to accept such form of activity, or could we not better substitute a form of more intense organization of the profession itself so that we ourselves do the work and retain the leadership—not only the leadership, but the actual doing of the work by the family physician and those called in consultation by him.

J. N. BAILEY, Paducah: How far do we mean to go in the phraseology "crippled children?" Do we mean that to be a crippled arm or a crippled leg or a distorted back or a crippled mind or a crippled ear? They are all crippled children. A crippled ear or a crippled eye may not be as visible to us as a crippled leg, but it is a decidedly greater handicap to the individual, and in my judgment it is just as deserving of attention as the poor little fellow who has a crippled back. I don't see where the dividing line comes. I don't see why there should be a dividing line. Unless the medical profession in each individual community arranges to take care of those physical handicaps that are crippling, I most certainly would recommend and approve that the state organization should not limit its work to a crippled arm or leg or back, but to the physical handicap that really cripples the individual.

JOHN W. SCOTT, Lexington: If this thing is carried to its logical conclusion, it seems to me we are right at state medicine. If we are going to have commissions that are going to scour the state with enthusiasm which a well-organized commission exhibits and with the efficiency that is developed in these organizations, we are going to have organizations which will gather not only all those who are totally unable to pay, but those for whom it is considerable sacrifice to pay, and treat

them gratuitously. While we all applaud the work of this splendid commission, I admit, and believe that my feeling is much that of others, that perhaps it is the sympathy toward the crippled child that makes us really lose our sense of proportion. After all, there is no more reason why the crippled child should be treated than a crippled adult who has a good many children dependent on him. Probably the total of childhood suffering through a father with a crippled leg is greater than if one child has a crippled leg. I think increasing the work of such commissions carries a real danger to medical practice.

R. E. SMITH, Henderson: As we use the term "crippled children," it is for the orthopedic surgeon. I think there we are justified in allowing a commission of this kind to exist, and I do not think that the average physician throughout our state is qualified or prepared to treat the case when it is sent back. I have seen some very bad failures following the turning over of those patients to physicians. They do not have the qualifications or the equipment necessary to handle those orthopedic cases. I think so long as the state maintains that type of charity, organized or not organized, and it has to be organized to succeed, we are absolutely justified; otherwise we are going into communism, and we might as well herd them all together, get the state to pay us a salary, and go ahead because the deaf and the blind and those who have defects of that kind can be treated as a rule, locally or near the locality in which they live, and that belongs to an entirely different type of charity from the one that the state is trying to handle for the crippled children, which has to be concentrated in hospitals and done by men who are doing that work, are qualified and equipped for it.

SECRETARY McCORMACK: Within the last ten days the Children's Bureau has made the public announcement that any defective child, with any defect, brought to their attention will have the matter handled by them in a clinic. That is exactly the thing that I think we ought to be thoughtful of.

L. H. SOUTH, Louisville: We have just secured, through the kindness of the Crippled Children's Commission, convalescent poliomyelitis serum for free distribution.

I desire very much that the House of Delegates would appoint a committee to consider dividing our state into serum center districts and select a physician in this district who will familiarize himself with the early symptoms of this disease and the manner of administering this serum. This plan of procedure has been adopted by the New York, Michigan and Illinois State Board of Health.

R. L. WOODARD, Louisville: Just a word of warning about the extension of work of this kind. The crippled child makes a special appeal to everybody. Unfortunately the ma-

jority of these crippled children are in families who are not able to pay. This work has appealed more than anything that has ever been done in the state along this line, but we must watch out how far we go with these things; we cannot ignore the very thing that we as medical societies are trying to avoid, and that is state medicine. There is a place where it must stop, and it is up to the profession to stop it by doing this work themselves.

Some man in every community is certainly able to qualify himself to do this work. The dearth of orthopedic surgeons over the State of Kentucky has made it necessary to send a great many of these children to the hospitals in Louisville, Lexington and Ashland for treatment. A great many of them have been treated more or less successfully in their own communities.

• We must watch how far these things go. However much they may appeal to our sympathies, we must watch them if we are to keep them from leading to what we have tried so long to avoid, state medicine.

SECRETARY McCORMACK: In the matter of the distribution of the serum, it seems to me it is a matter that will appeal to the profession. The members of the profession who desire to do this work will be furnished, by the laboratory, the convalescent serum in such quantities as they desire at any time. I think it would be a good idea if somebody would make a motion that the Council be requested to invite the members of the profession who desire to utilize the serum to acquaint us with that fact so we can put the profession on notice that these men will be supplied with the serum and can be called in consultation in the early management of these acute cases, because it is there that the whole benefit of convalescent serum is found. It does good only when it is used very early. We have it available at all times. The doctors should understand that they can get it immediately when they have a case. We will have depots for it in various sections of the state, so as to make it immediately available. I believe the Council could arrange to have a group of men strategically located who would be in position to serve at all times, from whom the physicians could have consultation if they wanted to call him in consultation.

E. B. BRADLEY, Lexington: So far as I know, it doesn't do any good to give the serum after the paralysis has developed. Unless poliomyelitis is epidemic it is almost impossible to make a diagnosis; the family physician won't suspect it. I think we might better have some on hand in different places especially if an epidemic does come. We have no epidemic now; we probably will have frost before we have an epidemic, but next year I

think we should give thought to it.

J. D. TRAWICK, Louisville: It seems to me there is no cause at all for controversy over what has been said. The suggestion has been made that the multiplication of commissions might possibly be pushing us further along toward state medicine; that we have discussed before.

One of the doctors made a very fine reference to the various types of crippling to which a child or an individual may be subjected. A crippled mentality or crippled ear or a crippled eye naturally is in need of treatment. It has been necessary in some way to draw the line, because the need was too enormous to be covered by any one individual effort. Therefore, for this Commission mechanical difficulties have been specifically related to.

The definition that is being used for crippled children applies to the orthopedics, that is the correct posture of the child, to the mechanical structure of the child, simply because the line had to be drawn somewhere and we who are doing this work in a very humble way are glad to be among those who are doing a part of the work that is needed.

I don't believe this is the place, Mr. Chairman, to discuss at length the time for the use of or the advisability or inadvisability of the use of the serum. I should like to say that if my child should be subjected to symptoms of infantile paralysis, I should feel that he had not had sufficient treatment if he had not been given the serum. The after-results are what we want to call to your attention. Unfortunately, we must see the cases after the crippling is done. The best thing we can do is to hope that the case will not be any worse.

PRESIDENT MCCLURE: The next order is the reports of Delegates by Counties.

#### BELL COUNTY

JACOB SCHULTZ, Middlesboro: We have a medical society composed of practically every doctor in the county who is eligible. We have monthly meetings, and we issue a program and have a program committee. We haven't missed a meeting. We alternate between the two towns of Pineville and Middlesboro. We meet at night and have a fairly good attendance. The faithful few are always there, and some of the other brothers come in occasionally.

#### BOURBON COUNTY

C. G. DAUGHERTY, Paris: We have twenty-five doctors in the county; twenty one are regular practitioners; two homeopaths, two cultists. We have nineteen members paid out of the twenty-one. The other two are rather hard to get, some way or other. We are going to slide under them and drag them in sometime. We have regu-



lar meetings practically every month, and have had since the county society was organized. We have general interest. Sometimes we slump a little, but we have found that the lady was correct, when asked how to manage her husband, when she said, "Feed the brute." If we get hold of some fellow who has a fat pig or some other kind of fat animal, and have enough of something to wash the dust out of their throats, it appeals to the membership. Every once in a while we meet with some of the doctors in the adjoining counties.

Following the lead of our confreres and good friends at Fayette, we frequently have what we call a general meeting; instead of having papers we have two men read some article of interest on epidemics, for instance, or something of real interest in the literature, and we then discuss that instead of having formal papers. When we have short notices and can't get an interesting speaker, we find this serves the purpose. We meet quite regularly. We have a hospital in the county, the doctors deliver lectures; we have a training school, white and colored wards, male and female, and we have an institution that is standardized and meets the requirements of the Hospital Association, so we feel we have a very good profession. We have a lot of scraps, like every other society when they get out of sorts about some hospital department or something else, but we just go on like the mill and don't pay any attention, and the first thing we know they are in and some others are out, while we go on forever.

#### BOYD COUNTY

SECRETARY McCORMACK: In the absence of the delegate from Boyd County, I want to tell you a thing that has happened there that I think will be of interest to every other county society in the state particularly the larger counties. You will recall that last year the Boyd County Medical Society passed some rather strong resolutions protesting against failure to enforce the law in regard to irregular and illegal practitioners in Boyd County. They had ample cause for complaint so far as the lack of law enforcement was concerned, but when it was brought to their attention through a very strong committee that was appointed, of which Dr. Maggard, at that time a resident of the county, was a member, in conference with us, we made the matter clear as to their responsibility in the matter, that we couldn't know about the man who was committing abortions in the county, or the man who was advertising, or the man who was violating the federal narcotic laws or the Volstead Act, unless we had the evidence presented to us, unless we knew who the witnesses would be, they knew and we couldn't know. Following

that, this strong committee took charge of the matter and made the investigation, presented the evidence, and we were able to go to Boyd County and hold hearings in these cases which resulted in the revocation of the licenses of four notorious offenders. It took several days to take the testimony.

An interesting byplay in that connection happened which showed the importance of real professional standing. In the case of two of these offenders, very powerful political influence was attempted to be used to save them from the verdict that naturally followed their misdeeds, and three or four of the very best men in that section of the state came to the members of the Board to discuss the matter with them. We summoned them as witnesses and put them on oath, and they swore this man was more disreputable than most of the other men who had appeared; they knew the situation, and knew more about it than anybody else, and when they were put on oath they made the very best witnesses that were presented in the case.

These four cases are now pending on appeal before the governor. Their certificates were revoked. One of them was revoked for the commission of a criminal abortion. It was shown by the evidence of quite a number of the leading physicians of Ashland and by the evidence of a dozen of the most influential and best known laymen of the city that this man was a specialist at criminal abortions and did little other practice, and his certificate was revoked.

The second offender had been sent to the penitentiary for violation of the federal narcotic laws, and there seemed to be no question about his case at all; it was shown that he was a persistent and consistent offender.

The other case from Ashland was that of a man who had had his whisky and alcohol permit revoked for cause. When the evidence was presented it was shown that he had made three affidavits that he had sold his alcohol, his whisky and his prescription books to druggists, and he himself swore to the affidavits, they were presented in federal court, and the druggists were fined. When he came before the State Board of Health he said these affidavits were false and there wasn't a word of truth in them. We told him that he could have his choice of what his certificate was revoked for, perjury for making false affidavits causing other men to be sent to the penitentiary, or the violation of the Volstead Act. He decided to have it revoked for violation of the Volstead Act. That was done and his revocation is permanent.

The important lesson is that the Boyd County Medical Society realized its duty in the matter, went to work, and worked hard. It was a difficult thing to do, but the four

notorious offenders were brought to the bar of justice and the profession was cleaned of them in the City of Ashland, and the people of Ashland have more and better regard for their physicians than they ever had before.

This is a difficult matter and requires a good deal of moral courage. I feel that the entire profession of the state is under obligations to the Boyd County Medical Society for what it did in this matter, and I wish very much that the other county societies, where they have cause for complaint, would not hesitate to see that they organize, either through the Board of Censors or through trial committees, and secure the necessary witnesses and permit us to clean the profession of this class of cattle who are bringing us into disrepute constantly.

#### BULLITT COUNTY

GEORGE B. HILL, Mt. Washington: The Bullitt County Society is organized and meets every second Saturday in each month. We have not missed any meetings this year. Four-fifths of the profession are members of the society.

#### CALLOWAY COUNTY

BEN BUTLER KEYS, Murray: Calloway County meets quarterly; it meets in the evening with a banquet or dinner with the auxiliary. We have a good attendance. We have a good secretary and a good president, and we have no trouble about our business at all. We have eighteen doctors in the county, and sixteen of them are members of the society. We have a county health unit in our county that functions splendidly. We have no difficulties of any kind, and are going along.

#### CARTER COUNTY

SMITHFIELD KEFFER, Grayson: We have about held our own. I don't know whether we have lost Dr. Maggard or not. He has gone to another county, but I believe he will come back and meet with us. We lost one of the best members in the state by death, and we miss him very greatly. We have every doctor in the society but two. I think you have a doctor in Lexington who can cure dope fiends. I would like to get hold of him.

#### CLAY COUNTY

J. L. ANDERSON, Manchester: I haven't anything but an informal report. We have eight doctors in Clay County, seven of whom belong to the Clay County Medical Society and to the Kentucky State Medical Association.

As to the functioning of our society, I guess we must do something for chronic encephalitis because we don't meet very often; we meet only occasionally. Our doctors in Clay County have just a little bit of a grievance that they want to lay before this delegation. We

have in Clay County and the adjoining county, Leslie, a number of nurses who are supposed to nurse and to do midwifery, but they don't confine themselves to that; they practice medicine the same as you and I do. They draw salaries, they have their homes built and furnished, and they have what you might call their little hospitals; they have fine horses furnished to them to ride over the country which is all right so long as the nurses practice obstetrics, but they don't, they practice medicine. They see more patients than all the doctors in Clay County put together.

They say they don't dispense, but they do, and they take onto their lists anybody and everybody at the rate of one dollar a month.

Most of the doctors in Clay County are like myself, living from their profession. We are not millionaires up there. We have worn our lives out practicing medicine over those hills, horse-backing. You gentlemen don't know anything about that unless you have come back in Eastern Kentucky and practiced medicine for a while. The doctors in Clay County want relief. I don't know whether this is the place to bring it up. I may get my ears chewed off, I don't know, but I am just telling you about it anyhow.

We are perfectly willing to cooperate with any corps of nurses in Clay County or Leslie County or Owsley County or Fayette County so long as they will confine their services to nursing, but we do not believe, gentlemen, that they ought to practice medicine.

I went to school under Dr. Frank and some other good doctors in Louisville, and I managed by the hardest effort to get a degree. I didn't say I graduated; I haven't done that yet. I got a degree and I got a certificate from the State Board of Health, otherwise I couldn't practice medicine. Now how is it or why is it that these nurses can come into my county and practice medicine without complying with the law as I do?

I have a boy, and if he practices medicine he has got to get a degree from a reputable medical school, he has to stand a State Board examination, which is pretty stiff, and he has to have a pretty good moral character, or ought to have, before he can practice medicine. I don't believe in licensing these nurses to practice medicine any more than you would license my boy or any other man's boy without the proper qualifications.

That is our grievance, gentlemen.

W. E. GARDNER, Louisville: I should like to ask if these nurses to whom Dr. Anderson refers are supported by the Nurses' Frontier Service.

SECRETARY McCORMACK: The Frontier Nursing Association.



W. E. GARDNER: And are not a part of the organization of the county health organization?

SECRETARY McCORMACK: No.

W. E. GARDNER: They are paid by a large foundation.

S. COHN, Fulton: We had the same condition in Fulton County. We had a nurse who practiced medicine, and every doctor in the county refused to handle cases that she went on. After that, the people fired the nurse and got one that wouldn't practice medicine.

J. N. BAILEY, Paducah: I don't know how the situation could be handled up in Clay County, but in McCracken County we have a public health nursing bureau. On a few occasions a nurse overstepped and practiced medicine, dressed some wounds, or did some things that the doctor is supposed to do. The doctors in McCracken County discussed the matter in their meeting. A committee was appointed, took up the matter with the nurses, and the situation was immediately adjusted, and now we are cooperating and getting along first rate.

SECRETARY McCORMACK: There is no question that the nursing midwives, licensed as such, have no right to practice any other branch. It is illegal and they can be enjoined just as any other individual who practices medicine in any other line than his own. Of course, our law provides that gratuitous service can be given by any individual in an emergency, but except for a smashed finger or something of that sort, nobody has a right to practice medicine for remuneration, which includes salaries just as for individual service. For example, Dr. Chambers would be violating the law if he were not licensed as a physician, because he is on a salary in charge of the medical service of this institution. The same thing would apply to the other hospitals, the University of Louisville, or any place. No body has a right to perform any of the duties ordinarily performed by a physician, in this state, unless licensed to practice medicine. That is perfectly definite.

J. L. ANDERSON: How do these nurses get narcotics and morphine and opiates?

SECRETARY McCORMACK: I didn't know they did. I don't see how they can under the law. The hospital can get narcotics, but the nurses can't under the law. I didn't know it could be done at all. They allow veterinarians and dentists to get narcotics, but not nurses.

#### ELLIOTT COUNTY

C. R. HUNTER: Unfortunately for the people, there aren't many physicians in the county. There is one physician at the county seat in one end of the county, and Dr. Sparks is in the other end, and the condition is such that the roads are impassable in the winter

time and only partially passable in the summer. It makes it very difficult to have medical meetings. Until recently the Elliott County Medical Society has been more or less defunct. We have just reorganized and are getting along very well, and we expect to meet as often as the weather will permit.

#### FAYETTE COUNTY

L. C. REDMON, Lexington: We have 100 active members. We have shown a gain of eleven members over last year, with a loss of two by death, one of whom was Dr. Stucky whom we miss very much, the other Dr. Pohlmeier, and one by removal, which still leaves a membership of 100. We have had fifteen meetings, twelve scientific, one business, two called meetings, with an average attendance of forty-five. We have had twenty-seven scientific papers and fourteen case reports.

#### FLEMING COUNTY

JAMES B. O'BANNON, Mt. Carmel: We have thirteen members in Fleming County. These thirteen pay their dues regularly without a whimper. We meet once every two months, and we meet sure enough! Our program consists generally of case reports, and in the discussion of those reports other questions are brought up to be discussed.

I should like to state that to my knowledge we have not had a Councilor visit us since Dr. Wells was our Councilor. We would be pleased to meet the Councilor, whoever he is. I believe it is Dr. Shaw.

LOUIS FRANK, Louisville: May I revert for a moment to the report of Fayette County and ask if this society or this House of Delegates has ever taken any steps or drafted any resolutions with respect to Dr. Stucky. He was an ex-president of this society, and long a very excellent member. I should like to see a committee appointed to draft a resolution during this session, to be presented to the meeting.

SECRETARY McCORMACK: No action has been taken by the state organization because it has not met since his death.

LOUIS FRANK: I make a motion that a committee be appointed to draft such resolutions in memory of Dr. Stucky, and also that out of respect to him these resolutions be presented in an open meeting of this society.

The motion was seconded and carried.

PRESIDENT McCLURE: I will appoint on that committee Dr. Edward Palmer as Chairman, Dr. Dan Griffith of Owensboro, and Dr. S. D. Marks of Lexington.

#### GARRARD COUNTY

J. E. EDWARDS, Lancaster: We have six physicians in Garrard County, all of whom are members of our society. We haven't had a meeting for so long that I really don't know when we did have one.

## GRANT COUNTY

C. M. ECKLER, Williamstown: Grant County is one of the unfortunate counties. The number of doctors has decreased from thirty to nine. We have nine active men in the county. Seven of these nine are members of the county society. We meet each Wednesday evening, and so far our attendance has been seven. We also have a county health unit which is working in cooperation with the county society and the profession generally. Occasionally we have an essayist from Cincinnati. We have no trouble; we are getting along nicely; we have fairly good roads, and in spite of the depression we are all making a living and are happy.

## HARLAN COUNTY

WILLIAM C. BAILEY, Harlan: We have fifty-members of the county society, and we have a meeting every third Saturday of each month. We have not failed to have any meetings. We have a luncheon at each meeting and we feel fortunate in having quite a bit of interest in our county society. We feel that the splendid attendance we have contributes quite a bit to the ethics of the doctors of our county. We have, as a rule, an average attendance of from twenty to thirty. We would probably have more if the topography of the county were different and the difficulty of getting to and from the county seat were not so great.

At one time this year we had a meeting at Lynch, twenty-six miles from the county seat with a good attendance.

Most of our county society members are members of the Cumberland Valley Medical Society, which is composed of six to eight counties of Southeastern Kentucky, and meets once each quarter. We always have a good attendance from Harlan County.

One very wise thing which has been done this year is the appointment of a Committee on Economics. That committee was appointed by the President. In the holding of clinics in our county, the giving of toxin-antitoxin and things of that kind to the indigent children, we voted to restrict that to the control of our society, so that that absolutely would not be out of the control of the doctors of the county and so the worthy children would get the vaccine, and not those who could go to the doctor and pay for it.

## HARRISON COUNTY

W. B. MOORE, Cynthia: We have had a successful year, probably as good as we ever have had. Nineteen men are practicing medicine in the county; seventeen are members. We have had twelve meetings in the past year. We have had an attendance of fourteen. The president, vice-president and secretary constitute the program committee. We have our election on the first Monday

night of December, and the program committee gets out a program in printed form for the year. The secretary calls up all the members, and if they have a subject they prefer to write on, we let them do it; if they don't have, we assign one. The secretary calls every member of the society and invites him to come, makes him feel an important cog in the wheel, and we get a splendid attendance in that way.

Through the cooperation of the society after several years of effort we have recently gotten a whole-time health unit, and the cooperation of the doctors is largely responsible for that.

## HENDERSON COUNTY

R. E. SMITH, Henderson: I don't know that there is anything new to tell about Henderson County. The two main highways have been torn up for the last five or six months, making it very difficult for men to meet, so we have not had as many meetings nor as good an attendance as usual.

## McCRACKEN COUNTY

J. N. BAILEY, Paducah: We in McCracken County feel that we have a rather unique experience. We have forty-seven reputable white doctors in the county, and forty-six are members of our local societies and paying their dues to the county and state societies without any controversy or hesitancy. We have our meetings regularly in the form of a buffet dinner at one of our hotels. We have a regular program, sometimes a paper, sometimes reports of cases, and sometimes questions that might be of interest to the profession at large in the county. We have lost three members of our society by death during the last year, and we have had three young men locate in our county who are now members of our society. We have a splendid spirit of cooperation and fellowship among our physicians, enough, if I may inject a little of personalities into this, that I didn't hesitate to call up one of my physician friends when I started up here and say, "Look after my work while I am gone." When I went away with a sick wife last year, I asked one of our physicians to operate on a case of appendicitis for me; he collected the fee, gave it to my office girl, and told her to deposit it in the bank. Fortunately I had the pleasure of returning that favor for him this year. We have three colored physicians who are rather reputable, who take care of the colored folks, but they don't belong to our society, of course.

Much of this work, I must say, is due to another unique feature about our society, and that is that our incoming president is the secretary of McCracken County Medical Society, and he arranges the program and the dinner and sees that there is a program. He



sees that each member is notified and especially requested to be present. On the average, I am safe in saying I think we have an eighty per cent attendance at each meeting. We have a district society in our end of the state, the Southwestern Medical Society, that is one of the oldest in the state, I think sixty-five years old, and I doubt if there is a better district society in the state or in any other state, if you will pardon my egotism. We entertain that society once a year. It meets quarterly. So far I see no reason and I think our society sees no reason why it should interfere whatever with our county society.

Our incoming president has been our local secretary for ten years successively, and for a period before that, long before my memory, possibly before my birth.

As to the splitting of fees and fake doctors, I think there is very little of it. Possibly there is one fake cancer doctor in our county who needs looking after. We know there are legal bounds whereby we can control him.

#### MCLEAN COUNTY

J. W. SCUDDER, Calhoun: McLean County has nine physicians, two of whom are incapacitated because of age or illness. Two others are not working very much because they have enough money and don't care to work. We have an organized society, meeting irregularly.

I would just like to second what the doctor has said about his Councilor. I have been in this county three years with the county health unit. So far as I know the Councilor from that district has never appeared at any society meeting. He has been in the county once, so far as I know, on another matter.

We have this county unit simply because the doctors of the county want it. When the question came up, the doctors met and by resolution and in person signified that they were willing to go before any organization and back the county health unit, and I respect them very much for that.

By way of discussion in regard to a nurse practicing medicine, I should like to say that we have one county in the state, one of the best counties, that doesn't have a county health unit, and the reason they are not having a county health unit is because of the activity of an insurance nurse who was in this county some years ago. I have seen things like that happen, and I know the evils that result from it.

SECRETARY McCORMACK: Dr. Sory is Director of the Irvine Memorial Trachoma Hospital at Richmond and is the delegate from his county. It is a particular pleasure to every one of you to see Dr. Sory here in person. He is a Kentuckian to the manor born; he

fits that place like a picture in a frame, and he has contributed wonderfully to the relief of trachoma in Kentucky. It is a great pleasure to have him as a member of the House of Delegates from his county.

#### MADISON COUNTY

ROBERT SORY, Richmond: Madison County is in very good condition. We have about forty physicians in the county, and I think there are only three or four who are not members of the society. We meet once a month, with the exception of one or two months, possibly, in mid-summer, and have a fairly good average attendance and a fairly good program. I am very glad to be with you, and I want to invite you to see my hospital.

#### PULASKI COUNTY

MARION WARREN, Science Hill: This is the report of the secretary, Dr. Cundiff: "We have, in the county, twenty white doctors and one colored, all active practitioners. Of this number fifteen have paid dues for 1931. The society has had five very interesting meetings during the year, with an average attendance of twelve. Subjects of vital interest to the profession have been discussed. Our society, after being dormant for several years, has taken on new life and seems to be getting in line for real service."

We are just starting our first experience with an all time health unit, not fully organized, but just getting ready.

We do have a little complaint to make down there about fellows practicing medicine without a license. We have five or six. We have one man practicing obstetrics. I hope something can be done about that. Since the county health unit has been started I think we stand a pretty good chance of getting rid of that.

#### TAYLOR COUNTY

J. L. ATKINSON, Campbellsville: This is the report of the delegate, W. B. Atkinson: Our society is one of the smaller ones in the state association, being composed of nine members, which is 100 per cent of the active practitioners of the county. One retired physician and one druggist have died within the last year.

I might interpolate here that the physician who died was a registered physician, but has not practiced medicine for twenty or thirty years and was never a member of any society.

Meetings are held monthly, with an occasional missed meeting because of the small membership. In the months of March, June, September and December joint meetings are held with the physicians of Marion, Adair and Green Counties, at which time speakers of unusual interest are secured to address us.

The doctors of the county take an interest in the work of the society, and this is reflected in the harmony and good fellowship that exists among them. We in Taylor County are a little vain of our ability to cooperate without friction and to see the worth of the work the other fellow is doing.

#### PERRY COUNTY

ROBERT L. COLLINS, Hazard: I am not the delegate from Perry County; he is not here. We have about forty doctors in our county. Most of them belong to the Perry County Medical Society. We write out our program the first of every year for each month during the whole year, and every month we have a paper of some kind, or a discussion of reports of cases. Twice a year we have ladies' night and ask all the ladies and have something good to eat. We have a health unit in Perry County that works in perfect cooperation with the medical profession in the county.

I believe there has been some little discussion about dissatisfaction with health unit or community nurses, but we have no cause to complain in Perry County. Our health unit requires each patient requesting vaccination or treatment of any kind at the hands of the health unit to present a card showing they are indigent; this card comes from the family physician, and the person must show it before he gets any treatment.

The Perry County Medical Society has good harmony and good programs and meetings.

SECRETARY McCORMACK: If Dr. Collins weren't such a modest man he would also say they have one of the best auxiliaries of any county in the country. His wife is as much behind that as he is behind the county.

#### JEFFERSON COUNTY

E. R. PALMER, Louisville: Jefferson County is the largest county in the state, as you all know. We have 382 paid-up members. This is a slight decrease over last year, the membership last year having been about 391. The society is very active. It meets twice a month every month in the year except July and August and has most excellent programs. This year we were particularly happy in the number of symposiums on some of the various interesting phases that are brought to the attention of physicians. It is also our custom throughout the year at intervals to bring some physicians of prominence from different parts of the country to address our society. We meet twice a month, and our attendance averages, I would judge, about twenty-five percent, which is a pretty good attendance for such a very large society.

Louisville, in Jefferson County, has, I would say roughly, about 600 physicians, and

we have two-thirds of the physicians of this large community organized in the Jefferson County Medical Society.

About a year ago we took up the question of having a permanent home for the Jefferson County Medical Society. This was discussed and voted on, both secretly and by ballots mailed to the individual physicians, and at the annual meeting it was passed by a very large majority, and a considerable sum of money was pledged to this. However, through the fact that we could not get a suitable location for a suitable price, and on account of the very great financial depression that came on at about that time, the matter has been dropped for the present, but we have great hopes and we feel that eventually Louisville and Jefferson County will have a building that will be worthy of not only the county but of the state.

LOUIS FRANK, Louisville: May I be permitted to add a word to a bit of work now being done by the Jefferson County Medical Society which I think is of great importance. There has been a committee appointed by the Jefferson County Medical Society to work in conjunction with a committee from the Community Chest of Louisville to evaluate the ability of individuals, so-called indigents, to pay for medical and surgical service. We have, of course, a very, very large clinic at the City Hospital. There is also, in connection with one of the other institutions of Louisville, a clinic contemplated. It therefore becomes necessary that these two charitable activities be not imposed upon. It is also very desirable that the doctors themselves evaluate the ability of these people to pay, and this is a thing that has been carried out in a good many other towns. You might be interested to know that investigations by the Rosenwald Foundation and other foundations have set a figure; for instance, in a city the size of Toledo, Ohio, or Sandusky, an individual who is married, who is paying, say, \$35 or \$40 a month rent, who has a wife and two to four children to take care of, should earn at least \$1,000 to \$1,100 or \$1,200 a year to be able to live under decent conditions according to American standards, and they find he cannot put aside from his budget more than \$50 for medical or surgical service. An obstetrical case that requires hospitalization, the development of some condition that requires surgical intervention and hospitalization, becomes a very important factor to that individual. In some of these localities, some of these foundations have guaranteed to the hospitals to pay for their bed beyond a certain amount, for the benefit of the individual.

The Jefferson County Medical Society is now undertaking to draw a base line or to evaluate the ability of these people to pay.



We want to get away from the socializing of medicine and looking upon it as a state function, and we believe that the best way to do this is to do it ourselves and not to wait for the state or the national government to come along and take a hand in the matter.

It may be interesting for you to know that in one city where this was done, the social service people said the base line should be \$100 a month. The county society flew up in arms and said, "Well, you appoint a committee to cooperate with us and we will go over the ground together." The county society came back with a report putting the base figure at \$125 a month in this particular community.

These are activities which I think your county societies can engage in where there are a certain number of indigents who are destitute, so that the doctors themselves will know how to base their fees, and probably we may not hear so much of state practice.

PRESIDENT MCCLURE: The next report is of the JOURNAL Committee. Dr. Bloch is absent. Following that is the Editor's report. May we have a report from the Editor?

SECRETARY MCCORMACK: The JOURNAL is the best report that I can submit. I should like very much indeed to have not only here a discussion of the JOURNAL in any of its phases, but especially to have any comment at any time from any of the members, who are the owners of the JOURNAL in regard to its methods and policies. I think we can take a great deal of pride in our JOURNAL. It is unique in many respects. It is the only journal that attempts to publish every article sent in by each county society in the state. We have published every article that has been sent to us in twenty-six years, except one, and that was lost, unavoidably. I think the JOURNAL makes a fair cross-section of the attainments of the profession. We can take a great deal of pride in the looks and contents of our JOURNAL today and in its preceding years.

There are two things about it that are of particular interest to the member. In the first place, we guarantee the advertising in the JOURNAL. If any member has any controversy with anybody about any advertised product, or with any institution, we settle with him and then take up the complaint and handle it with the advertiser. We charge extra for that service and carry it to the members, so you can rely upon the quality of the advertisements in the JOURNAL. We definitely stand behind them.

The fact that we publish all the papers causes comment sometimes on the character of some particular paper. I think that is an excellent thing to do, and if anybody sees anything in the JOURNAL he doesn't like, I hope he will write a letter about it, and we

will publish the letter and start interest. I wish you would attack them a little oftener than you do.

Fortunately the JOURNAL pays for itself (it always has), and that is because of the generous support of our advertisers. Our advertising income this past year was a little higher, in spite of the depression, than before.

We should like very much to have comment from any member of the Association in regard to the JOURNAL, at any time.

PRESIDENT MCCLURE: Report of the Committee on Workmen's Compensation Law.

#### REPORT OF COMMITTEE ON WORKMEN'S COMPENSATION

F. P. STRICKLER: We, the members of the Committee on the Workmen's Compensation Law, upon investigation of existing conditions, submit the following report:

We find that the \$200 medical limit allowed by the Workmen's Compensation Law of the State of Kentucky is totally inadequate and inconsistent with the proper care of seriously injured workmen, and that no injury of a serious nature can possibly be treated in a hospital, and all the expenses covered, for this amount.

We also find, upon investigation, that the honest, reliable and responsible insurance companies and their adjusters do not limit themselves to \$200 for medical services to injured workmen, but will pay any reasonable amount beyond the \$200 to secure good results for their injured man. In fact, the above-mentioned companies completely ignore the medical limit of \$200 as allowed by the Compensation Law of Kentucky today, and are willing to pay just fees to doctors, nurses and hospitals and everyone else concerned in securing good results for them.

We find that there are certain unscrupulous, disingenuous insurance companies and adjusters who merely use the \$200 medical limit as a smoke screen behind which to hide. The result is that when a seriously injured case runs over the \$200 medical limit, the bills are prorated, the doctor is not paid a just fee for his work, the nurse is not paid for her long hours of service, and the hospital receives practically nothing at all for 's many months' care of this type of insurance company's patients.

These unscrupulous, disingenuous insurance companies and their adjusters and legal representatives, through their unfair practice of proration of medical bills, have caused the doctors, nurses and hospitals of the State of Kentucky to lose many thousands of dollars each year.

We, the Committee on Workmen's Compensation, feel that the present Compensation Law of the State of Kentucky is unfair to

the doctors, nurses and hospitals, and that aggressive steps should be taken before the state legislature to protect the medical profession and its associates from this obviously unfair law which permits unscrupulous insurance companies to prorate medical bills.

**RECOMMENDATIONS:** We, the Committee recommend that the Kentucky State Medical Association ally itself with the Kentucky State Hospital Association and the Kentucky State Nurses' Association, and that these allied associations shall go before the Kentucky legislature and that they shall demand a limit of \$700 for medical care of injured compensation cases, instead of the now existing \$200 medical limit.

We further recommend that in special cases, by application to the Workmen's Compensation Board of the State of Kentucky within a limit of ninety days, this \$700 medical limit can be raised to \$1,000, or the amount of \$300 in excess of the \$700 medical limit for ordinary cases.

We recommend an immediate aggressive and intensive campaign on this subject, and that the Compensation Law of the State of Kentucky be rewritten and brought up to the standards of other progressive states, many of which have no limit at all on medical expenses of compensation cases.

**CONCLUSIONS:** These recommendations will in no way increase the rate or work a hardship on the honest, reliable insurance companies who are soliciting compensation insurance in this state. It might possibly work a hardship on the unscrupulous, disingenuous insurance companies doing business in the state, but as we see it the workmen, doctors, nurses and hospitals would be much better off if insurance companies of this type were not permitted to do business in the State of Kentucky.

**LOUIS FRANK, Louisville:** I think this is a very important matter before this House of Delegates. Personally we do practically no compensation work, so I have no axe to grind. I may speak of this matter from an unprejudiced standpoint. As the result of my connection with one of the hospitals in Louisville, however, I have been in a position to see the operation of this law as it now stands, and I think over 60 or 70 per cent of the unpaid bills that the hospital carries on its books are due to compensation cases. We have discovered such a flagrant outrage that we in our hospital have adopted a rule which we propose to adhere to strictly, to refuse to admit any compensation case whatsoever unless the employer guarantees the hospital bill. That is not the doctor's bill; that is for the protection of the hospital. This is a matter not between employers and doctors, but between insurance companies and

doctors.

I move you, sir, that this report with its recommendations be referred to the Committee on Legislation and Public Policy, with instructions to cooperate with the two groups mentioned in the report and draw up a bill to present to the next legislature to remedy this matter.

The motion was seconded and carried.

**PRESIDENT McCURE:** Next is the report of the Committee on Medical Ethics, R. E. Smith, Henderson, Chairman.

#### REPORT OF COMMITTEE ON MEDICAL ETHICS

**R. E. SMITH, Henderson:** Mr. Chairman and Members of the House of Delegates: About three weeks ago I was asked to act as Chairman of this Committee. It is an important Committee and I think there are many things that should come up and that very likely will be brought up through the year, but unless there is coordination and cooperation on the part of the men who bring up these questions, it is a very difficult matter for the Committee to act or for us to get definite action in regard to medical ethics.

Today one of the greatest problems confronting the medical profession is fee splitting. In trying to analyze this unfortunate and unethical habit we must go back to the cause of the necessity of so doing. Fee splitting cannot be discussed without taking into consideration the economic problems which bring it about in many cases. First, the unjust and illogical attitude that the public has toward surgical operations (I am not criticizing the surgeon, please understand that; I am not laying it at his door at all), the grandstand play, the glamor, the excitement, the feeling that the skill of the surgeon is so much greater because of the visible demonstration of action than the quiet, thoughtful diagnosis of a competent internist who has spent far longer in making his diagnosis than the twenty minutes or an hour spent in performing the operation, has caused the public to place a far higher rating of the value of the operation than of the value of the correct diagnosis. The public is more willing to pay exorbitant and great deal higher fees to the surgeon than to the painstaking internist.

Second, the inexcusable habit we have allowed to develop in the medical profession in this and in all other states is that of the practitioner practicing medicine and surgery at the same time. In this way we get a great many who could develop into good surgeons or into good internists, drifting into mediocre surgeons and internists.

The surgeons in the smaller towns are being fed by the internist, and to get the patronage of the internist they are splitting the fees, making it almost necessary to both that



this should be done. The remedy in this case is for the surgeon to restrict himself to surgery, refer his cases for diagnosis to the internist, and for the internist after having diagnosed the case to refer it to the surgeon. The oculist and the ear, nose and throat specialist in like manner should refer his cases to the internist, and the internist should refer them to the specialist when conditions have arisen or exist that call for the special training of the eye, ear, nose and throat specialist. If the medical profession of Kentucky will try more diligently to fit themselves for more definite work in their definite branches of medicine and indulge more frequently in consultation and refer their cases to each other who have specialized in definite branches, the fee splitting will, to a large extent, become an instance of past history, no longer an existing evil which helps undermine the high ethical standard which has prevailed in the American Medical Association.

Another condition that exists and is to a certain extent to blame for the fee splitting habit is the difficulty that exists in prompt collections. The medical profession is largely to blame for this condition. They allow the public to feel it is all right to pay when they can, and it is all right to cut on the fee, making a reduction. This might be remedied by the state medical society having a collecting bureau for fees which they will collect in those cases in which the individuals are able to pay and have avoided doing so because they feel they can get by with it. This collection bureau exists in other states and I understand it works well. To a large extent we have to contend with a type of individual that always feel that he is exonerated by the fact that others do not pay, and there is no means by which this individual's record may be passed on to other physicians so that they may be safeguarded against this deadbeat.

The condition under which the medical profession today has to exist has forced the members of the profession, to a large extent, to abandon that humanitarian attitude which prevailed and which was admired, and justly so. At the same time we must remember that the public conscience has deteriorated a great deal in the last fifteen years when it comes to paying just debts. This is forcing the medical profession to become more cold-blooded and businesslike and less philanthropic. It would aid the state medical society in another way, in that only members of the county medical society would be allowed to avail themselves of the services of this collecting bureau.

Another cause of fee splitting may be based on a lower level still, and that is the operating on patients for the purpose of obtaining

a fee when these operations are not necessary. This at times can be laid at the door of the physician and not the surgeon, because the physician knows he is going to get a part of the fee and this encourages him to have needless operations performed, whereas if he were not getting part of the fee he would not be so eager to refer patients to the surgeon. This unethical, unscrupulous and inexcusable habit is at times more prevalent than we would like to admit.

Another cause for fee splitting is the fact that in our medical schools the Hippocratic oath is forgotten; medical ethics is taught in most instances by giving the student a small pamphlet issued by the American Medical Association on the ethics of our profession. The professors do not teach the ethics of our profession, and the medical departments excuse themselves by stating that they have the pamphlet on this subject.

I had that answer given to me by three medical schools last summer. When I made it a point to find out, they told me in a very quiet, peaceful air, "Well, you know we give them that little pamphlet on medical ethics."

The report of Dr. J. S. Chambers and Mr. Harry R. Lynn on "Medical Service in Kentucky" I think has been to a large extent suggested and undertaken due to the hysteria that took hold of some of our profession and also was taken up by the politicians and over-emphasized by both. The report is a valuable piece of research. We find other states with fewer physicians per population than Kentucky, Kentucky having one physician to every 879 population, New Jersey having one physician to every 944, Rhode Island having one physician to every 896, Virginia having one to every 1,023, and the District of Columbia having one to every 918. These three states and the District of Columbia, which I picked out at random, have splendid roads, splendid means of communication, and their hospital facilities are far above Kentucky's. Their wealth per capita is considerably above Kentucky's, and we do not hear an outcry from these states regarding the shortage of physicians. If the facts were only plainly stated (and I do not refer to Dr. Chambers' and Mr. Lynn's report) one physician for every 1,000 population, with proper equipment is all sufficient.

An over-supply of physicians does not differ from an over-supply of wheat or of cotton or of sugar; this causes a drop in the value of the commodity; likewise, the medical profession is today feeling the result of the over-production of physicians. I do not know that this report is going to have the slightest effect upon the distribution of the physicians in our state. We must remember that the wealth of a state is very intimately connected

with its health. Kentucky ranks as one of the poor states of the Union, and even with that it has more physicians per capita than twenty-five of our states. This leaves twenty-three states that have a very slight percentage more physicians per 1,000 population than Kentucky. It would be very interesting now to get at the causes of this uneven distribution of physicians in our state, and after these causes have been enumerated, classified and investigated so that they may be put down as a definite fact, properly substantiated with accurate data, let this information be handed out to these communities that are so in need of medical care; also let our politicians avail themselves of these facts. I do not feel that it falls to the medical profession to remedy this situation, for the following reasons: The conditions in our rural communities must be improved before we can ask the physician to sacrifice his family when he feels that he can do better elsewhere. Lack of roads is the first great cause; second, isolation; third, lack of hospital facilities; fourth, getting down and opening broken gates. The lazy farmer who hasn't enough self-respect to get a wire, tie it to the end of the gate, bring it up and twist it, shouldn't have a physician come to see him. He sits on the front porch spitting tobacco while you stand in the mud trying to get in. Fifth, distances; sixth, life is so much harder for the doctor's wife and family; seventh, poor school facilities; eighth, last but not least, inability to pay the doctor a living wage, much less a fee that will enable him to be self-supporting after the age of sixty. The public at large feel that the doctor is an object of pity—"give him any old thing, he will be glad to get it." Even Seth Parker in one of his broadcasting programs took up collections for the old village doctor. I think it was for him to be able to buy gasoline, a very charitable community.

We need not become hysterical over Dr. Chambers' report, and what if some of the politicians do rant around and talk about it and try to impress the physician with his duty and his loyalty to suffering humanity. It is time for the doctor to turn on the politician, tell him to expend the funds of the state so as to provide proper educational facilities, see that the country and small towns group together and help finance small hospital units, build roads, and make the country community a decent place in which to live. and, gentlemen, the doctors will flock to the country, because where there is education there is prosperity, and where there is prosperity there is money, and all these individuals who have been having these horrible nightmares will have to "fold their tents like the Arabs and silently steal away."

It is all right for a groceryman to call you at 2 o'clock in the morning that a neighbor has a very sick child, when the thermometer is ten degrees below zero, and say, "Of course, doctor, you know they cannot pay and it is charity." I went in such a case, I saw the sick child and five other children that were getting ready to be sick. What they needed was fuel, food and clothing. The next morning I went to this grocery and ordered about \$5 worth of food and asked them please to deliver it to this family. The groceryman with a smile on his face said, "Of course, you wish this charged to you." I said, "You charge it to me and your funeral will be preached in the evening paper." What this family needs is food and clothing, not a doctor; they need the interest of the community and of the groceryman to furnish them the necessities for maintaining life. It is high time the medical profession began to make the people realize their responsibility to the indigent in their community.

Another example and it will suffice. About two years ago when some of the doctors in one of our western towns let the school board know that they were not going to continue to treat the injured boys for nothing, quite a number of the business men in town held an indignation meeting and stated that the physicians were going to cause the high school to cease having a football team, and articles came out to this effect in the local paper. At a meeting of one of the eating clubs, a physician suggested that each business man contribute \$5 toward the emergency fund for boys that were injured, to help defray the physicians' fees and pay the hospital. The matter was dropped instantly, there was nothing more said about it; the minute the public had to contribute to the welfare of the students that might become injured in football, they lost all interest in the football team.

The question of the indigent is one of the most serious that confronts the medical profession, and it now lies to the medical profession to react to a man, properly coordinated and determined that the public shall share this responsibility with them and help provide means by which these individuals may be cared for. In some of our larger cities this is done in a small way; in our small cities and rural communities it is not done at all. The public must be made to appreciate the fact that poverty and all that goes with it is the direct cause of at least 80 per cent of the diseases that occur in destitute families. If our communities would care for the indigent in such a way that they will have food, clothing, shelter and heat, they will be able to work and the majority to support themselves, or at least help to support



themselves, and the medical profession will not be called upon to treat the hundreds of thousands treated every year due to the lack of the necessities of life. In other words, an ounce of prevention is worth a pound of cure. The country would not be confronted with such a tremendous drain to care for their sick. Our philanthropic organizations and individuals have given millions to rehabilitate the stricken portions of Europe, rebuilding towns, building hospitals and what-not, giving aid wherever disaster has occurred on the face of the globe, but we have not seemed to be able to realize that if hospital units were established throughout this nation, with well-equipped hospitals, with a definite yearly income to help maintain the overhead expenses, it would relieve this nation of millions of dollars yearly spent in treatment of disease. The public seems to think that the medical profession is responsible for all the imbeciles and morons that appear in our civilization. Let the medical profession again tell the feeble-minded, "You are reproducing nothing but what is expected." Make that humanitarian, justice-loving individual who wants all men to have their inalienable rights preserved, pay for the reproduction of these mentally incompetent and physically deformed who are hostages to fate, a care and a burden to their communities and to the state.

The actual statistics show that there is not a lack of doctors, but there is an actual overproduction of doctors; they are just not properly distributed. As we have stated before, remove the obstacles which have been mentioned and the country communities will not be without doctors very long. In other words, give the doctor a living wage and let the public provide the necessary means by which the physician can minister to the needs of the public with properly equipped hospitals.

There has been a migration of the doctors from the country to the city. Let us ask the business men, the lawyers, the preachers, the philanthropists, to move into one of these benighted districts where the doctor does not wish to live and subject his family to conditions which he feels he has no need to put up with, as he can do better elsewhere; let them set us the example. It would not be long before desperate efforts would be made in our legislative halls to see that funds were forthcoming to build roads, to build schools pressure would be brought to bear on our utilities so that we might have electricity and other conveniences, and we would find the desert changing into a garden. The trouble is we have not gone down to the cause of the conditions that now exist. A better distribution of our road funds, a little more constructive and definite planning on the part

of those that are in places of high authority, with more humanitarianism and less selfishness and less party interests and individual interests, and an impartial attitude to go about to remedy these conditions in poverty, stricken communities, and we would not only settle the distribution of the medical profession, but also rapidly make our state a wealthy commonwealth.

How many doctors can stop practice at the age of sixty? How many doctors in Kentucky can send their children through college and through the university? How many doctors are independent in Kentucky at the age of sixty? It is a peculiar humanitarianism that will grind the life out of a few members of society and does not realize the responsibility to the individual who is sacrificing his life to a community. I do not wish for one moment to create the impression that the medical profession must lower its high standard of idealism, of service, of self-sacrifice in the effort to minister to the ills of mankind, but I am merely asking that the medical profession demand of society that the doctor and his family shall have the same privileges that are allotted to men of his intelligence, qualifications and ability. There is no profession that has so nobly and unselfishly served mankind as the medical profession. quiet, uncomplaining, and with that high sense of duty and devotion to high ideals. The Great Physician said, "A laborer is worthy of his hire."

SUMMARY: Under the head of medical economies I suggest that the President appoint a committee to investigate a collecting bureau, as they are functioning in other states in connection with the state medical association, and that a report be made through the Kentucky State Medical Journal of the findings of this committee sometime between now and the next meeting of this body.

I think it would be appropriate to request the University of Kentucky to follow up the report on "Medical Service in Kentucky" by a study into the causes that have brought about the lack of physicians in the rural districts of our state. An investigation into these causes we are confident will bring out the facts which we have enumerated, and others which do not depend upon the medical profession to remedy, in improving and facilitating commerce and bringing these rural districts into closer contact with the outside world by good roads and good schools. Instead of talking so much about conditions, let us obtain the facts and place before the public what has been done, what is being done, and what should be done, and why certain things are not done. The majority of reports are very good. Frequently a subject is investigated which is of little value and the

work is done by a student for the purpose of obtaining a degree; the work in itself may be of academic interest, but practically of no value.

Our political life of today has become so involved, and, if we can trust the reports in our daily papers, there is so much dishonesty existing in administration of governments that the compiling of the facts in a permanent form would aid the honest politician a great deal in helping to remedy some of these difficulties, and it might encourage the dishonest politician to act a little more cautiously in expending the public's money.

LOUIS FRANK, Louisville: There is another report which deals with or touches upon the same measures. I refer to the report of the Committee on Medical Education. If it is not out of order, I would suggest that we have that report at this time and discuss both together.

PRESIDENT McCURE: We will now have the report of the Committee on Medical Education, by John W. Scott, Chairman.

#### REPORT OF COMMITTEE OF MEDICAL EDUCATION

JOHN W. SCOTT, Lexington: The members of your Committee on Medical Education, none of whom are teachers of medicine, undertake with some diffidence a report upon medical education. We submit, however, for your approval the following:

First, as to pre-medical education. We deplore the technical trend which this appears to be taking. Some of our colleges seem to aspire to give a junior course in medicine rather than a broad general education.

The classics, mathematics, modern languages, in short, the studies which furnish the cultural background so much to be desired, are neglected for subjects which will be taught in the medical school and are better left until then. After all, does education consist simply in acquiring information? Is not much gained indirectly? Certainly mathematics is important in the training of the chemist; perhaps the study of Shakespeare bestows a knowledge of human nature superior to that gained by the study of, let us say, Freud; perhaps the classics contribute something to the student of English not gained from English composition.

Would not the time spent by the pre-medical student upon a course in endocrinology extending through two semesters be better employed even in the study of Greek, now almost without a friend upon our college faculties?

It seems to us that it may be assumed that the requirements in physics, chemistry and biology prescribed by Class A medical colleges are sufficient, and that, those having been met, so-called cultural subjects should

be stressed, and especially that the student should not be encouraged to take courses which will be found in the medical curriculum.

Second, we believe that the increasing need for recruiting physicians in the country districts of the state is of such pressing importance that many, whether fairly or not, are thinking of medical education chiefly in terms of this need.

We realize that many factors enter into this condition. Among them is fickleness of support of the physician by his clientele which calls upon him when the nature of the illness or the condition of roads or weather compels them to rely upon him, but is all too ready to leave him for the physician in the larger place. This, obviously, works a particularly serious hardship upon the country doctor.

That operates in Lexington as well as in other places. In Lexington the larger place is Louisville, and in Louisville the larger place may be Rochester, Minnesota or Baltimore, Maryland. That is back of a great deal of the difficulty that the country practitioner has.

Another factor is that the graduate in medicine inevitably will seek conditions in which the rewards are greatest and the hardships least. Unless we think so poorly of the country folk that we would send to them poorly prepared practitioners whose wings are clipped, so to speak, these conditions must be altered so that the rewards of practice in the country will attract and hold well-equipped men. Hospitals in smaller communities and technicians, at once bringing modern laboratory methods and relieving the practitioner of time-consuming laboratory work, are means to this end.

Third, while we do not believe that a fetish should be made of the present high standard of medical education, we should be mindful of what it has given us and should not be willing to relinquish it for the delusive hope of a benefit which we cannot expect to gain by abandoning it.

Fourth, your Committee believes the University of Louisville School of Medicine is serving the needs of the state with a high degree of efficiency and deserves the commendation and support of this Association. No other city in the state supplies or could be made to supply sufficient clinical material for a first-class medical school, unless perhaps by some expedient which inevitably would demoralize the practice of medicine not only at the site of the school, but in every section of the state.

For example, consider the conditions in Wisconsin, in Michigan, in Virginia, in North Carolina, with great state schools endowed



and supported by large foundations; consider the conditions there where these large state hospitals are gathered from people all over the state in order to teach students medicine. If you had a school in Hopkinsville or Bowling Green or Lexington, with a great state hospital, patients would be drawn from every community in the state; it would be felt in Owensboro, Ashland, Danville, Paducah, and in every section of the state as well as at the site of the school, which I think would be a deplorable thing.

"We believe that Louisville is the place for medical education in this state. We are not convinced that an increase of graduates in Kentucky would effect our conditions materially. If, however, it is thought best to increase the graduates of medicine in Kentucky, we believe this can best be effected by enlarging the facilities of the Louisville school.

Respectfully submitted,

J. G. GAITHER,  
JOHN B. FLOYD,  
JOHN W. SCOTT,  
Chairman.

PRESIDENT McCLURE: The discussion will be on the last two reports read.

E. R. PALMER, Louisville: I should like to speak briefly to a point brought out by Dr. Scott. Of course, this is the scientific age, this is the age of super-scientific effort where we are bending all of our efforts toward bringing up our young men to be hard-boiled scientists. If there is one thing that I regret, not only in medical education, but in the education in the primary schools, the high schools, and even our universities, it is the relegation to the discard of the old-time classics and devotion of the time of the men to the study of Greek and Latin and the ancient English literature and things like that. The doctor of the older time was looked upon not only as a scientist, but as a man of particularly high culture. I am afraid we are getting away from that at the present time. I very much agree with Dr. Scott that it is a very decided mistake for these young men in their pre-medical courses to be fed up with a whole lot of scientific material which really they are incapable of digesting. Education does not mean pouring into the brain a whole lot of unassimilable scientific facts; education strictly means to draw out, to lead out from that man his hidden abilities, and this can be best done, to my mind, by giving that man a classical education.

If I had my way about bringing up the younger men, instead of letting them enter a college, if they were going to a college to take a Bachelor of Science degree and were going to study medicine later, I would have every one of them take the old Bachelor of Arts

degree, in which they were well grounded in Greek and Latin and in ancient English literature, and also the literatures of France and Germany.

SMITHFIELD KEEFER, Grayson: I agree with the last speaker, only I think I would change it just a bit. We have, and still have, plenty of doctors in the State of Kentucky who have made their mark in the scientific world who never had a college education. We can refer to our old friend Ephraim McDowell. There is not a man in the world who knows anything about his accomplishment but reveres it. He was a man who never even graduated in medicine, but he was the type of man who would have made a doctor if you had set him down in the backwoods and turned him loose. We have such doctors today, too. It is true that Dr. McDowell studied for two years at the best schools obtainable at that time.

When I was a boy we had a bonesetter in about every other school district who would set bones for people who didn't have money enough to get a doctor; he didn't know the name of a single bone in the human body, but probably some of the bones he set were as good as any doctor could do. We still have such people. I think it is fine if a man has enough money to get an M. A. degree, but how in the name of peace is your Greek or Latin going to do any good when you have a difficult obstetrical case and don't know the dimensions of anatomy you are dealing with. I think it would be far preferable to teach them anatomy than Greek. I don't think my friend Frank would be the type of surgeon he is if he had devoted two or three years to Greek and Latin instead of studying anatomy.

We need arithmetic and we need English and reading. If you are a good reader, an expert user of your own language and fine in your mathematics, I think you have got what you need for your medical school if you stick to it.

I knew a boy who wanted to be a doctor. He was earning \$200 a month. He had had one year in college. They couldn't give him any more at that time. He figured he would have to go to school for two years premedical work, four years medical college, at least one year as an intern. With the money he was earning and the money it would cost, it figured up over \$17,000. He said, "I can't afford to do it."

One young fellow had a high school education, and I believe he would have succeeded as a doctor anywhere.

As to the country doctors, there is not a bit of trouble with them. I live in a country town that is several miles, twenty-five in fact, from a good town, and I guarantee half

of the doctors I can get will be capable. The trouble with country people is that they don't pay their doctors. I don't know of any family that couldn't get a doctor if they would pay him. We had to pay for our education; let's educate the folks who come up after us to pay the doctor. I have been trying to train my children to pay their doctors monthly, the same as they pay the groceryman or any other person, and they don't seem to have any difficulty with the doctors that come to see them.

SECRETARY McCORMACK: There is one feature of Dr. Smith's report that I think bears special consideration, and that is the matter of collection agencies through the state and county organizations. This has been undertaken in a number of states in recent years, and, as he reports, has been very successful. It is a matter that requires considerable organization to carry through, and of course it is necessarily self-supporting, because it is based on a percentage of the collections, just as any other collection agency is. It is a question that the profession is interested in, and I should like to hear some discussion of that phase of it, as well as other features of the report.

W. E. GARDNER, Louisville: I should like to express my appreciation of both of these reports. I don't know of any two reports that I have heard recently that would have a tendency to put us so squarely on our feet as these reports would seem to do.

As Dr. Smith has said, there has been a great deal of hysteria amongst the profession about the shortage of doctors in rural districts, and I think our own society has had too much to say about this. I began to protest in the meetings of the Council some years ago that we were agitating this question unduly and I believed that we would never have the proper distribution of physicians until economic conditions in the rural districts were improved to such extent that it would be attractive to physicians to go there. I think Dr. Smith has analyzed the situation in a most wholesome way, and I feel sure that if every member of the next legislature could have a copy of his report, it would cause them to take an entirely different view of the situation.

There is no doubt that the people in the rural districts are selfish to a great extent; even the well to do people in these communities want the doctor there because the medical fees will be less if they have a competent physician near them. Until people in the communities are willing to expend money to provide better living conditions for the indigent in the community, and other people pay a small fee along with the better fees of the well to do, I am sure as time goes

on there will not be adequate medical facilities. It is impossible to keep even the chiropractors in the country. They are all drifting to the cities where there are better living conditions.

Dr. Scott makes the important point of not establishing another medical college in the state, which is well taken. As a part of this hysteria the question arose: Well, if Louisville cannot graduate more physicians we should have another medical school. This question came up before the last legislature. A great many of us felt it would not relieve the situation. It all goes back to the question set forth so beautifully in Dr. Smith's report and also in Dr. Scott's report, that question of medical economics which is a part of medical ethics.

Dr. Smith took plenty of latitude in his committee, but he was justified in doing so, and until living conditions in the communities have been improved it is absolutely out of the question to talk about getting the proper distribution of physicians.

I simply wanted to express my appreciation. I am sure a great many of us have thought along this same line but could not express ourselves so well as has been done in these two reports.

LOUIS FRANK: I also arise to express my appreciation of these most excellent reports. To me these reports are of such importance that they would be lost in the transactions if there were no heading to them. I would move you, sir, that they be given a heading indicating their contents and published separately in the JOURNAL. Dr. Gardner suggests that a copy be sent to each member of the next legislature, and I second that, too.

Dr. Frank's motion was seconded and carried.

JOHN W. SCOTT: If you will allow me a word in closing, I should like to correct a misapprehension as to the report of my Committee which Dr. Keffer has. It was not the idea of the Committee to suggest any further requirement in medical education (those requirements have been well set out by the so-called Class A medical schools), but only that those students who have the means and the opportunity to continue longer in college and to attain a degree and are able to spend more time than is required, should be encouraged to take cultural subjects rather than to add biological subjects to the requirements which have been set forth, or biological, chemical and physical subjects. For instance, one of our universities has a course in advanced anatomy. Conceive of it! A course in advanced anatomy before a student has ever seen a cadaver. Also, course in endocrinology extending through two semesters. Those



are not prescribed or thought necessary by those who are specialists in medical education.

The observations which the Committee made were intended only to cover the courses suggested to the student who is able and has the opportunity and the time and the means to take a full college course, and the Committee had no idea of adding these suggestions as requirements in medical education at all.

SECRETARY McCORMACK: Mr. President, I find myself in some embarrassment in regard to the publication of the report. A definite recommendation has been made in regard to the investigation and establishment of a collection agency. That ought not to be published with the report unless we are going to approve it.

LOUIS FRANK: That ought not to be published. I should omit that part.

SECRETARY McCORMACK: I believe the society ought to take action with regard to the investigation of this other matter and with regard to recommending to the University of Kentucky that it pursue the investigation further that was initiated in Dr. Chambers' excellent report.

LOUIS FRANK: I move that the recommendations of these committees be adopted.

The motion was seconded and carried.

SECRETARY McCORMACK: I would suggest that somebody make a motion that the practical matters referred to be referred to the Council for such investigation and appointment of such committees as are necessary to make the investigation.

LOUIS FRANK: I so move.

The motion was seconded and carried.

The meeting adjourned at five twenty p. m.

#### MONDAY EVENING SESSION

September 7, 1931

The second session of the House of Delegates convened at seven forty-five o'clock, the President, W. B. McClure, presiding.

PRESIDENT MCCLURE: The first order of business is the calling of the roll.

Secretary McCormack called the roll.

PRESIDENT MCCLURE: There is a quorum present. I also note the presence of our efficient Sergeant-at-Arms, Dr. Owsley. (Applause).

J. G. OWSLEY: It won't be long until I will be sixty-five years old, and I never before was on the campus of the state university, and for the last hour I have been lost.

PRESIDENT MCCLURE: The next order of business is the report of the Committee on Publicity, C. A. Vance, Chairman.

#### REPORT OF COMMITTEE ON PUBLICITY

C. A. VANCE, Lexington: As has been the custom, this meeting has been well advertised all over the state by the office of the Secretary of the Association. Here, the Lexington

Herald and Lexington Leader have very kindly given the meeting considerable publicity and have published much of the program and a number of photographs of the officers and guests. We are, of course, very thankful to them for this service.

E. S. MAXWELL,

JOHN S. CHAMBERS

REV. DR. T. W. RAINEY

HON. T. R. UNDERWOOD

CHARLES A. VANCE, Chairman.

SECRETARY McCORMACK: I move that the report be accepted and that our thanks be extended to the editors of the Herald and Leader for their splendid publicity and splendid cooperation.

The motion was seconded and carried.

PRESIDENT MCCLURE: The next item is the report of the Committee on Scientific and Commercial Exhibits, Dr. C. A. Vance.

#### REPORT OF COMMITTEE ON EXHIBITS

C. A. VANCE: It seems to us that this committee is largely honorary as the scientific and commercial exhibits are all allotted space and position by the office of our Secretary, and as far as we can see this work has been done very well and the exhibits are arranged in a suitable manner. We hope that every one attending the meeting will make a call at each exhibit. These exhibitors are carefully selected from a large number of applicants, and they pay for their space and really pay the expenses of the meeting, so we should treat them just as well as we can.

W. M. MARTIN

C. C. HOWARD

CHARLES A. VANCE, Chairman.

SECRETARY McCORMACK: I move the report be adopted.

The motion was seconded and carried.

PRESIDENT MCCLURE: We are very pleased and delighted to have with us for the next report on the Woman's Auxiliary, Mrs. E. B. Houston, the President of the Woman's Auxiliary. I suggest that we stand in recognition of Mrs. Houston. (Applause).

Mrs. E. B. Houston, Murray: Mr. President, Members of the House of Delegates and Members of the Kentucky State Medical Association: I bring greetings to you from the Woman's Auxiliary. I realize that I am appearing before a body of very busy men with much to do in their limited time. Therefore, I am simply giving a short verbal report of the Woman's Auxiliary to the Kentucky State Medical Association, your Association. May I remind you in the beginning that none are eligible to membership in this organization except your wives, your sisters, your mothers, your daughters, and the widows of your brother doctors who have had their last call.

Our organization came into being in 1922

at Crab Orchard Springs, with your approval. At present we have on our Advisory Board from your body, Dr. W. E. Gardner, Dr. A. T. McCormack, and Dr. V. A. Stilley, so you can see that what we do must still be approved by you. We are glad to have it so. You are giving your experience, you are giving your very lives for the service that we are organized to help you follow. We would not for a minute try to take any authority from you. We have always been willing to help you. I believe you will agree heartily when you recall the activities of the women of your homes, but experience has taught us that organized effort can be very much more effective. We would not neglect your homes and ours, the babies and the boys and girls of more mature years, but we wish to help you more effectively to make the world in which our families are, more livable. Far be it from us to attempt to enter into the scientific needs of the day; that is your field. We are anxious to take hold where you no longer have time to carry on.

When you return from these meetings and your association with these doctors and with your qualifications improved, do you not enter into your work with renewed zeal? I am sure you can understand that this might be just as true of the doctors' wives who come here and meet the wives of other doctors and they together sympathize, see visions, dream dreams, and mature past ambitions. If you doctors did not bring your wives to this meeting, won't you please bring them to the next meeting?

Among other nice things that Dr. Morris Fishbein says about the Woman's Auxiliary is that when the Woman's Auxiliary is active the disciples of Bernarr McFadden, the Defensive Diet League and the cults that heal by laying on hands, both on the body of the person and on his purse, find it a difficult matter to get on the program.

Dr. Fishbein further says that auxiliary activities give to the doctor a well informed and interesting companion with whom to talk when he returns to his home.

Doctors, if at any time we women get in your way at these meetings, all you have to do is ask our Advisory Board to do a little advising.

Our work for the year has been very satisfactory, but, of course, as is possibly true with your work, it has not been all for which we had hoped. We need and we solicit a closer cooperation from you doctors. This year we have entered into a friendly competition in the form of a contest between the District Councilors and the County Auxiliaries. It is yet to be determined which Councilor and which County Auxiliary has won.

The parts in this contest are

(1) Paid-up members. If you gave your wife her yearly dues of one dollar, you helped in that.

(2) Subscriptions to *Hygeia*, the health magazine. The House of Delegates of the American Medical Association meeting in Philadelphia recently, passed this resolution: "RESOLVED, That the House of Delegates urge the Woman's Auxiliary of the American Medical Association, including the county, state and national organization, to recognize as one of its chief activities the distribution of this publication through parent-teacher associations, boards of education, and similar bodies interested in education."

They further say that *Hygeia* is the only authentic health periodical available in this country and that it has been established as the official voice of the American Medical Association to educate the public in matters of health.

(3) Part 3 of our contest covers biographies of medical meetings. It is our purpose that no M. D. shall fail of recognition. We hold that any child of the future should be proud to find in the history of his progenitors a biography of an unselfish M. D.

(4) Part 4 calls for interesting stories of medical practice.

(5) Part 5 is the Jane Todd Crawford Fund with which some day we hope to erect an appropriate memorial to the heroine of the Ephraim McDowell operation. You will be glad to learn, I am sure, that the Auxiliary to the Southern Medical Association at their recent meeting in Louisville contributed \$50 to this fund and elected their President, Mrs J. Newton Brawner of Georgia, as a member of the committee for forwarding this movement.

(6) A medical scrapbook for each county

(7) A state medical scrapbook.

(8) Contributions to the woman's page in your Kentucky Medical Journal. We wish you doctors would help us to interest the women of your homes in reading this page.

(9) Regular meetings.

(10) A study of nine lessons in the Kentucky health laws. These we realize you have been largely instrumental in securing. The ninth lesson of this course covers the medical practice act. With this lesson we hope to educate the public as to the requirements and qualifications necessary for the lawful and ethical practice of medicine. This study course has recently been revised to date, and 50,000 copies are being published to be distributed among the women's clubs of Kentucky to be used on their programs. This study course has interested the auxiliaries of other states to the extent that they have inquired concerning our plan, preparatory to



getting out something similar in their states.

Do you men realize that at present the membership of all these auxiliaries combined is 12,000 persons?

(11) Part 11 of the contest covers a study course gotten out by the American Medical Association Auxiliary.

(12) The last part of the contest stresses the attendance of the women members of doctors' homes at this meeting.

Outside of this contest, many other activities have engaged our membership. Radio health talks have been sent out regularly from Louisville, and the writing of health essays has been encouraged on the part of school children. Periodic health examinations for the physician, his family and the laity are being agitated, and at present we are preparing to meet the request of the Auxiliary to the Southern Medical Association for a correct and readable history of Kentucky's nationally accepted medical heroes. These life stories, augmented by the histories of nationally accepted medical heroes of other states, will go to make up a program for the Auxiliary of the South. We Kentuckians are very sure that the Kentucky medical heroes will rank favorably with any other medical heroes of the Union. I treasure as one of the most eventful days of my life the day that it was my opportunity to assist in unveiling the statue in the rotunda of the capitol at Frankfort, erected in memory of one of these heroes, Dr. Ephraim McDowell. We are honored in having his granddaughter to welcome us to Lexington in the morning. I also deem it an honor to have had the privilege of greeting the women of the South at this Louisville meeting, in the name of the Kentucky Auxiliary.

I regret very much that it has been necessary for me, as State President, to limit my visits to the county auxiliaries. Through the courtesy of Mrs. V. A. Stilley, I had the pleasure of attending a very pleasant meeting of the Marshall County Auxiliary, where Mrs. L. L. Washburn is doing such splendid work. At the invitation of Dr. H. H. Hunt, secretary of the Graves County Medical Society, I had an opportunity to lend encouragement to the Graves County Auxiliary and to spend a very pleasant hour with their honored guests, Dr. and Mrs. J. T. Reddick and Dr. and Mrs. A. T. McCormack and Dr. and Mrs. V. A. Stilley.

I have served my own county this year as the county auxiliary president.

I hope that this short report will reveal to you in a small way how anxious and willing we are to do all we can to help you forward the cause of scientific healing, to the glory of the doctors of this profession. I hope that the auxiliary and the medical profession will never lose sight of the fact that precious lives

are in your hands, and to the extent that you are qualified and to the extent that you are conscientious, humanity will be physically healed.

Did you ever look at a drug addict or an alcoholic derelict and blame your inefficiency for his downfall? The doctor's responsibility is appalling. No one knows this better than a doctor's wife. All honor to the doctor who acquits himself acceptably in the eye of the one and only righteous Judge. Let each of us fill our sphere full. Some are surgeons and some are internists, and we, their wives, mothers, sisters, daughters and widows, are anxious to aid you in your work.

I believe what Margaret Sangster says of the average man could easily be said about the average doctor.

When it comes to trusting yourself to the risks of the road,  
When the thing is the sharing of burdens,  
The lifting of the heft of a load,  
In the hour of peril or trial,  
In the hour you meet as you can,  
You may safely depend on the wisdom  
And skill of the average doctor man.

Doctors, allow me to say in conclusion and to repeat that the Auxiliary is for you, and we want you to be for us. We appreciate every courtesy that you are showing us at this convention, especially the Wednesday luncheon, and the whole Auxiliary joins me in hoping that "the good Lord consecrates all doctors, and obliterates from His great book their lesser sin, if they sincerely comfort men." (Applause).

SECRETARY McCORMACK: While it seems somewhat an anticlimax, I can't as a member of the Advisory Council, (and I know I speak for my two associates on the Council,) permit this very beautiful report from the Woman's Auxiliary to pass without some comment from the membership of this House.

The Woman's Auxiliary in Kentucky is only nine years old, and yet it is interesting to think that it has a larger membership than our own organization had when it was fifty years old. They have made greater progress because we are better organized and we have given them a better opportunity for the great start they have made.

When you think of the serious content of that program of twelve points that Mrs. Houston has so graciously and gracefully presented to us, think what it means to the counties in which the Auxiliary is organized, think what the children of the future are going to know about health organization, about the medical profession, that the children of the past had no opportunity to know, think of the multiplication of health teaching that

is going to come from the increased reading of Hygeia, we have failed as a profession in Kentucky in popularizing this greatest of public health educators. It ought to be, and we all know it, on the office table in the waiting room of every physician. It is the best friend we have; it teaches the best we know, and it arms our people with a knowledge that makes them understand us and understand our objectives and our aims in a way that no other publication has ever attempted to do. It is the best scientific magazine to be found in America. If every physician will help his wife to see that the ten most thoughtful and considerate of his patients have that periodical come to them once a month for a few years, it will be impossible for any travesty in the form of any sort of cult which may be devised in the future to get a foothold in the Commonwealth of Kentucky. That sort of thing is worth working for.

I had intended to wait until tomorrow to tell the members of the Auxiliary about a suggestion that is to come to them from the Council, but I am going to take the privilege now, because I really feel, after hearing Mrs. Houston's beautiful address, we ought to say something right now that will make them feel as grateful to us as we are proud of them.

Heretofore, through the generosity of one of our members, we have published in the JOURNAL a considerable portion of the proceedings and work of the Auxiliary. The Council has felt, however, that most of the JOURNALS go to doctors in their offices, and they ought to stay there, because the doctors need to have the JOURNAL, they want it as a work of reference, they want to keep it, and too infrequently is it taken home so the wives may read it.

The Council wants to ask the cooperation of the Auxiliary in the publication, to begin with, of a quarterly supplement of the JOURNAL which will be devoted to the Auxiliary, in which the Auxiliary will be given the opportunity of securing the necessary advertising for its support, and where they can secure additional income that will assist them in doing the work necessary for them to do. The supplement can go to the member of the Auxiliary in the family, and the JOURNAL can go to and be retained by the physician. In this way we will be able to accomplish better our purpose and at the same time always make you feel that you are an essential and necessary supplement to our work. We want you to know that in separating you from the pages of the JOURNAL we really are trying our level best to tie you closer to us and to show you that by increasing your opportunity for self-expression we are really making or attempting to make you know how

deeply we feel our indebtedness to you, not only personally for the happiness of our homes and the environment that makes it possible for us to live and keep on working but in your organized capacity for your great influence and the growing influence we know you are going to have on public affairs in the future. (Applause).

PRESIDENT MCCLURE: Next is the report of the Heart Committee, E. F. Horine, Chairman.

#### REPORT OF HEART COMMITTEE

E. F. HORINE, Louisville: Mr. Chairman and Members of the House of Delegates: Your committee during the past year has continued the study of the prevalence of heart disease in Kentucky. This study has necessitated the investigation of thousands of records, and we trust to have it completed by next year. In addition, we may say that our primary impression concerning the prevalence of hypertensive heart disease seems justified. Undoubtedly essential hypertension constitutes the most prevalent type in this state.

Last year the Heart Committee succeeded in interesting the American Heart Association in placing a scientific exhibit at the Louisville meeting of the Southern Medical Association. This exhibit attracted considerable attention, and, in fact, the Executive Secretary felt that much had been accomplished.

The Committee continues to offer its services collectively as well as individually to any county society desiring any information concerning the heart problem in all its phases.

Respectfully submitted,

AUSTIN BELL, Hopkinsville  
J. W. KINCAID, Ashland  
WALTER BYRNE, JR., Russellville  
J. W. SCOTT, Lexington  
J. R. MORRISON, Louisville  
W. L. TYLER, Owensboro  
SILAS GRIFFIN, Henderson  
EMMET F. HORINE, Louisville,  
Chairman.

PRESIDENT MCCLURE: The report of the Committee on Control of Cancer, Wallace Frank, Chairman.

#### REPORT OF COMMITTEE ON CONTROL OF CANCER

WALLACE FRANK, Louisville: Mr. Chairman and Members of the House of Delegates: Your committee has given much time and thought as to the means of controlling cancer in this commonwealth. We are all of the opinion that while much work has been done in the study of this disease and much money and time have been expended, and although some advances have been made toward the discovery of the etiology of cancer, we apparently are but little nearer the solution of the problem than we were a decade ago.



We believe that only by the education of the people to the importance of seeking medical advice upon the appearance of any tumors or ulcers on the surface or within the abdomen, and also to the importance of any change in the menstrual cycle or the appearance of an unusual discharge, can early diagnosis be made. This information can and should be brought before the laity, not only by the physicians themselves, but through the lay press and also by talks or discussions before luncheon clubs and various women's organizations.

We believe that by the early study of abnormalities such as we have mentioned, a certain number of cases of cancer will be found at a stage in which cure may be accomplished by properly selected treatment.

Within the next few months in the new Norton infirmary in Louisville there will be opened under the auspices of the Society for the Control of Cancer and the American College of Surgeons, a free cancer clinic. To this clinic may come individuals of any walk of life or any financial circumstance, who may be thoroughly studied by specialists in the various fields of medical practice in order to diagnose early malignancy. In case a positive diagnosis of cancer is made, the patient will be referred back to the family physician for treatment by him or for him to send the case to any doctor whom he thinks best equipped to carry out the necessary treatment. This clinic will be able to offer surgery, deep x-ray therapy and radium in the treatment of malignancy.

It is not, however, the purpose of the clinic to treat individuals, although such will gladly be done should the family physician refer the patient back to the clinic for treatment. The prime object of the clinic is the early diagnosis of malignancy so that proper treatment may be instituted while there is still a possibility of cure.

We believe this is a step forward in the effort to control cancer. Similar clinics are in operation in the East, and there is one in Atlanta, and we hope that with this as the parent clinic others will be established throughout the state.

In conclusion, we can only reiterate the statement of previous committees of this organization, namely, that to date the education of the people to seek medical advice early and the careful diagnosis and proper treatment of borderline conditions seems to be the only method we have at present to control cancer.

PAUL GRONNERUD

C. A. VANCE

P. H. STEWART

WALLACE FRANK, Chairman.

SECRETARY McCORMACK: I should like to move that Dr. Frank's report be adopted and

that this Association pledge itself through every agency at its command to assist in the development of this diagnostic clinic that is soon to be opened in Louisville, that we may help to relieve our people of one of the two causes of death that are increasing in Kentucky. Dr. Horine's committee and Dr. Frank's committee represent the two causes of death for which there has been no diminution in the state. It therefore behooves us to make an especial effort to reduce the incidence of death from heart disease and from cancer.

The motion was seconded and carried.

PRESIDENT McCCLURE: That completes the program for tonight, except to go back to some unfinished business, and the first is the report of the Council.

SECRETARY McCORMACK: At the request of the Chairman, I will read the report.

#### REPORT OF THE COUNCIL

We are pleased to report that the paid membership at this time this year is 1770 as against 1769 last year. This is particularly significant in view of the unprecedented economic depression. Many of those who are delinquent will pay their dues, and our membership will remain approximately the same as for the past several years. When it is considered that there are 2600 physicians licensed in the state, a considerable number of whom are not in active practice, we feel that this is an excellent showing. It is remarkable that while the number of physicians in the state has decreased by more than 1400, the membership of this Association has remained practically the same.

We have published in the last issue of the JOURNAL the report of the auditor on the accounts of the Secretary and Treasurer. We hope that the members of the House of Delegates have read this report carefully and thoughtfully. All of the appropriations and all of the work of the Association are entirely under the control of the House of Delegates at all times.

Our affairs are in excellent shape. Our total assets are \$20,026.15 as against \$18,913.51 last year. The balance in the checking account is \$7,086.64 as compared with \$6,235.17 last year. The receipts for the JOURNAL were \$8,235.94, and the cost of the JOURNAL was \$8,076.63. The favorable balance of the JOURNAL would have been increased \$222.40 but the loss of a current deposit in the National Bank of Kentucky when it closed. This favorable financial situation has resulted from a continuation of the advertising income from the JOURNAL, which has enabled us to keep a balance above operating expenses for all but two of the last twenty-six years. The JOURNAL has continued to comply with the policy of this House, of publishing practically all of the articles

read before the county societies, as well as the scientific proceedings of the sessions of this Association. Those unfamiliar with this policy have sometimes criticized it. We merit and invite such criticism. The members of the Association have continued to improve the JOURNAL from year to year because their scientific knowledge has improved. Its annual volumes furnish a fair index of the state of medical knowledge in Kentucky.

For the past seven years the Association has cooperated with the State Board of Health in the enforcement of medical practice and other health laws. The House last year authorized an expenditure not to exceed \$1200 for this purpose. Fortunately we were called on to expend only \$300 of this amount. The Council recommends the appropriation of not to exceed \$1200 for the same purpose for the next year.

Under our unfortunate and clumsy system of court procedure, the constantly changing county and commonwealth attorneys elected under our partisan and political system too frequently result in the election of men who are not sufficiently energetic or interested in law enforcement to effectively enforce the medical and health or in fact any of the other laws of the commonwealth. It is indeed surprising, under such a system, that the majority are such good officers. Realizing, as physicians do, the vital importance of the health and medical laws, it is natural that irritation will frequently arise amongst them because of failure in their enforcement. In those sections of the state where physicians have joined with other progressive organizations of citizens in the selection of worthwhile attorneys as court officials, there has arisen no complaint. Complaints of evasion of the law come from the poorly organized counties and districts which continue to select these officials as reward for political service or because of the predominating influence of some special interest, and it is apparent that it will be impossible to improve conditions in these sections until public opinion has been educated as to the importance of the selection of competent officials. This year, again, our attorneys have assisted in the preparation of more than 143 cases, and they have been effectively aided by the commonwealth and county attorneys in many sections of the state.

The careful management of the Medico-Legal Committee has kept the cost of attorneys' fees at practically the same figure as the preceding year, \$1125 for 1931 as against \$1025 for the preceding year. Court costs and expenses of this committee were \$190.25 as against \$154.85 for the preceding year.

We regret to report that there is no decrease in the number of such unjust black-

mail suits against reputable members of the profession. The Council desires to express formally the appreciation we are sure every member of the Association feels for the devoted services of Honorable Fred Forcht, who was the General Counsel of this committee for many years preceding his death. Mr. Forcht was a man of outstanding ability and was generous with both his time and his knowledge, for which his remuneration was quite nominal. Dr. J. B. Lukins, Chairman of the Committee, has devoted much time and thought to this work which he has conducted most successfully.

It is very important that physicians generally carefully consider the character of such malpractice suits as are being brought. To this end they are urged to read thoughtfully the decisions of the courts published currently in the Journal of the American Medical Association. It is evident from careful study of such cases that there has not been a suit decided against a reputable physician in many years which could not have been prevented if the legal precautions which should now be known to all of us had been taken at the right time. The whole subject of malpractice procedure has become definitely technical, and in order to avoid becoming victims of injustice from its operation, physicians must acquaint themselves with these procedures, as they do with the other complexities of modern medicine.

We again call to your attention the Irvine-McDowell Memorial Hospital for Trachoma, located at Richmond. This beautiful building and grounds were bequeathed to the Kentucky State Medical Association by Mrs. Elizabeth Irvine as a memorial to her grandfather, Ephraim McDowell, the immortal father of ovariectomy. The state association, representing the physicians of the state, provides the building, and the State Board of Health and the United States Public Health Service jointly furnish the personnel and finance the conduct of the hospital. The management of this hospital under Dr. Robert Sory, of the United States Public Health Service, has been most satisfactory. Due to an emergency which has arisen in the heating plant, the Council recommends an appropriation of \$300.

Last year the House appropriated \$1200 to pay the expenses of additional organization. This amount has been expended wisely, and Mr. Blackerby will make a report of his work during the past year.

The Council desires again to emphasize that the JOURNAL has been published at a profit, because of its continued support by our advertisers. The importance of the patronage of these advertisers by our members cannot be given too much emphasis. The value of



the JOURNAL to every reader is apparent. This Association guarantees the financial integrity of the advertising columns of the JOURNAL. For these reasons we feel we have a right to ask our members to give our advertisers their patronage, other things being equal.

The same remarks apply to the exhibits at the annual meetings. These exhibitors pay the expenses of the scientific sessions. They are carefully selected from among a large number of applicants by a special committee of the Council, and they exhibit the annual improvements in medical and surgical technic in a very effective way. The exhibit this year is particularly interesting, and the Council desires to urge those in attendance to study it carefully.

We desire especially to commend the very careful study made of medical service in the state by Dr. Chambers and his associates of the University of Kentucky, and we recommend that the Association extend its thanks to the University of Kentucky and to Dr. Chambers for this study.

We desire particularly to commend that section of the conclusion of the report that urges the development of community hospitals in the state, with state aid for their erection and maintenance. The treatment of disease has come to require definite facilities in many cases, which can only be supplied in well organized, well staffed and adequately maintained hospitals. Such institutions erected and maintained at strategic points in the state so that they will be available for its entire population, would help to solve all the problems that now confront the people of the state in regard to the treatment and cure of disease.

The Council desires to express its cordial appreciation to those counties which have organized a Woman's Auxiliary. It urges every other county to organize as rapidly as possible. The report of this fine organization indicates that in the few years since the Crab Orchard meeting, at which it was developed, it has secured a larger membership than this Association did in its first 49 years. Its state officers and the officers of its county organizations have displayed a commendable zeal in its work, and the Council asks that it be authorized to make such expenditures as may be necessary to give it every possible aid for the coming year. The Council recommends the appropriation of not to exceed \$500 to assist in the development of the Auxiliary during the next year.

During the year, Hygeia has received many more subscriptions in the counties where the Auxiliaries are organized than ever before. During the coming year an attempt will be made to secure 5,000 more subscriptions to this important publication of the professor

of Kentucky. The Council urges that in every county the wives, widows, mothers and daughters of physicians be organized into an active club which will be continually doing things for the welfare of the state.

During the year the Council has given certain definite amount of space to the Woman's Auxiliary in the pages of the JOURNAL. The cost of printing for this space has been defrayed by one of our members, and it has not caused any reduction in the number of pages of scientific material, nor has it increased the cost of the JOURNAL for the Association.

Our county societies are meeting with greater regularity and are showing a greater interest in the organized work of the profession than they have for many years. Councilor district associations have been organized in a number of districts and are doing a valuable service. The Council wishes to emphasize the importance of the preservation of the organization and the integrity of the work of the county societies themselves, regardless of what interest may be developed at meetings of groups of counties. The leaders of the profession will always attend medical meetings anywhere, because they recognize their value, but it is essential that the affairs of each county society shall be under its control all the time.

We are also gratified that members of the profession entering the various specialties in medicine are spending a longer time in their preparation and study for such a career, and we believe that physicians should not announce that they limit their practice to a particular specialty until they have attained such a degree of education and experience as will entitle them to membership in the learned societies of their proposed specialties.

R. C. McCHORD, Chairman.

This report was unanimously approved by the Council.

PRESIDENT MCCLURE: There is nothing that comes before this House of quite so much importance as the annual report of the Council. It gives every delegate here an opportunity to endorse or criticize, and that is your opportunity now. Speak your mind and we will hear you. The report is open for discussion.

C. A. VANCE, Lexington: Is there a recommendation there for the separate printing of the Woman's Auxiliary supplement?

SECRETARY McCORMACK: No. There is one omission that was made. The Council asked that it be authorized as your publication committee to investigate the cost and proceed with the publication of the supplement for the Woman's Auxiliary if it finds it feasible.

PRESIDENT MCCLURE: I take your silence as endorsement of the report. If a man doesn't feel like endorsing a thing he is go-

ing to criticize it, and if there is no one who wishes to discuss this very interesting report, a motion to endorse it and make the appropriations is in order.

R. L. WOODARD, Louisville: I move the adoption of the report as read and the appropriations recommended.

The motion was seconded and carried.

SECRETARY McCORMACK: I have a communication I should like to read to you from the City of Louisville, Executive Department, W. B. Harrison, Mayor.

The City of Louisville sends its official greetings to you through me, as Mayor, and sends not only best wishes for a most enjoyable meeting at Lexington, but a cordial and sincere invitation to the Kentucky State Medical Association to again assemble in 1932 in this city.

Your local members are most anxious to be accorded the honor of again entertaining you, and the City of Louisville is no less interested than they in this possibility, and it is our hope that this letter of invitation may convey to you something of the cordiality our city feels in extending this bid to your members.

Anything that the city government can do to assure a pleasant stay here will be done. I feel that I do not have to go into the details of Louisville's advantages as a convention city, inasmuch as all of you are thoroughly familiar with what we have to offer. Therefore, you know without being reminded, that the latchstring is out and Louisville holds forth a welcoming hand if you see fit to honor our city by selecting it as your next meeting place.

From the Louisville Convention and Publicity League, Leo J. Heer, Secretary and Managing Director:

The Louisville Convention and Publicity League, representing the entire business, professional and civic fabric of Louisville, considers it a privilege and a pleasure to have this opportunity of joining with your local members in again extending a most cordial and sincere invitation to hold your 1932 meeting in Louisville.

Through your previous meetings in this city you are familiar with our facilities, so it is unnecessary to point out that we have excellent accommodations for your meeting. We want you to know that if you come to Louisville next year you will find here that same friendly atmosphere which you have met on the occasion of your previous meetings in this city. Our organization will be pleased to cooperate to the fullest extent in any manner in which we can be helpful, to the end that your 1932 gathering in Louisville will be one of the most enjoyable and most profitable ever experienced by your Association.

As long as the By-laws provide that we shall meet every third year in Louisville, I would suggest that it is obvious that it is not necessary for us to accept this invitation, which is also extended by the Jefferson County Medical Society and by the Medical Department of the University of Louisville and all the other medical organizations in Louisville, but that the invitation be accepted by virtue of the by-laws and it is not necessary to put it to a vote.

R. L. WOODARD, Louisville: I move we accept the invitations and file them. Carried.

SECRETARY McCORMACK: I have a communication from the California Medical Association:

The House of Delegates of the California Medical Association at its Sixtieth Annual Session, held at San Francisco, April 27 to 30, 1931, passed the enclosed resolution and requested your organization to consider it:

WHEREAS, The present Army regulations require that every medical reserve officer shall, during each five years' commission period, put in two hundred hours of military work, in camp, correspondence school, in active training meetings, or similar military activity, or else become ineligible for renewal of his commission with assignment to an Organized Reserve Unit, and therefore, revert to the Auxiliary Reserve in time of peace, and

WHEREAS, There are many highly trained, highly skilled, and very active physicians who, as reserve officers, have been assigned as chiefs and assistant chiefs of surgical medical, laboratory, roentgen and other distinctly professional services, and in positions requiring special technical skill such as is usually possessed by specialists, carrying very little administrative responsibility, and whose professional duties in busy private lives make them especially well fitted for their duties in their Army assignments, but whose same duties make it practically impossible for them to carry on military work in time of peace, and

WHEREAS, Many of these men and their valuable attainments are being lost to the Organized Reserve, although they are willing and anxious to serve their country in time of need and do not aspire to advancement in grade, therefore be it

RESOLVED, That the California Medical Association, desiring that the medical profession may be of the greatest service to our country, respectfully suggest that the best interest of the military service might be enhanced if the regulations regarding the Organized Reserve were changed to provide for the recommission and assignment of officers holding assignments such as those mentioned in the second paragraph, even though



they may not have completed the required amount of military work, and hereby recommend consideration of such change, and further be it

RESOLVED, That a copy of this resolution be sent to the Corps Surgeon and the Commanding General of the 9th Corps Area and the Surgeon General of the Army, the officer in charge of Organized Reserves, the Adjutant General of the Army, the Chief of Staff of the Army, and the secretary of each state medical association.

I don't think we need to include that last one if we endorse it. I move we approve it and notify the California Medical Association that we have done so.

The motion was seconded and carried.

JOHN W. SCOTT, Lexington: I think it is unfortunate that committee chairmen don't come and make their reports. Here we have to scurry out at eight o'clock in the morning because men didn't take their duties seriously. I think the members of the House should be made to feel that being appointed chairman of a committee is not only an honor but a working job, and they are expected to perform. It is distinctly hard on the rest of us to come here at unusual hours because some of the men don't meet their obligations.

SECRETARY McCORMACK: I have another communication from the Chamber of Commerce of Danville. You will recall that last year we appointed a special committee on the McDowell Memorial, a committee to investigate the possibility of securing the McDowell house in which the operation was performed. Honorable J. W. Harlan, former senator from that district, is very anxious to present the possibilities of the matter to the House of Delegates at some time during the session. He is representing the Chamber of Commerce of Danville. He says that the property cannot be obtained except by a condemnation proceeding, and of course this cannot be started until funds are at hand to pay for the same. They want to know what we want to do about it. We are the only body that can take any steps in that transaction. It is hardly necessary to bring it up for discussion here without having Dr. Cowan, who is Chairman of the Committee, present. We don't know what steps have been taken by the Committee, but I hope he will be here at the Thursday session, and we will make a report on that subject.

C. A. VANCE: I move we adjourn until after the scientific session tomorrow afternoon.

The motion was seconded and carried, and the meeting adjourned at nine-five o'clock.

## TUESDAY AFTERNOON SESSION

SEPTEMBER 8, 1931

The third session of the House of Delegates convened at four-forty-five o'clock, the President, J. T. Reddick, presiding.

The Secretary called the roll.

PRESIDENT REDDICK: A quorum is present. The first order of business will be a report from the Committee on Legislation and Public Policy, Dr. Irvin Abell, Chairman.

IRVIN ABELL, Louisville: But one thing has been referred to the committee, a communication from Dr. Woodward of the Bureau of Legal Medicine and Legislation of the American Medical Association, stating that this particular report of the committee, composed of Dr. H. Douglas Singer of Chicago, Dr. Winfred Overholser of Boston, Dr. William C. Woodward of Chicago, Dr. Ludwig Hektoen of Chicago, and Dr. William J. Stapleton, Jr., of Detroit, and approved by the Board, or an excerpt of the report is sent to this Association, with the recommendation if possible that the state association endorse it.

This is the extract: "To the Board of Trustees: Your Committee on Medico-Legal Problems respectfully submits the following report:

### CRIMINOLOGIC INSTITUTES

"The detection and punishment of crime is a major problem today throughout the entire country. Experience abroad and a limited experience in the United States have shown that science can do much to aid in accomplishing those ends. Frequently the first step in the detection of crime, the identification of the living and the dead—sometimes the identification of mutilated portions of dismembered bodies—depends on anthropometric measurements, finger-prints, evidences of age, sex, race, pre-existing diseases, and old injuries, such evidence as is discoverable only by skilled pathologists. Examinations of the dead body, by inspection and autopsy, to determine the cause and time of death, call for like services. The nature and origin of stains must be accurately determined, procedures that call for scientific technic and accuracy. Vomitus, excreta, and the contents of the intestinal tract, the various tissues and organs of the body, and various substances found in and about the place of death must be analyzed to determine the presence or absence of poisons, the nature of food and drink ingested by the deceased or the accused, and so on. Inquiries must be made into the mental states of persons from whom complaints are received and of persons under arrest or on trial, whether those mental states be due to narcotic drugs, alcohol, injuries, disease, congenital defects, or insanity. Scientific investigations are nec-

essary in connection with charges of criminal abortion, rape, and infanticide. On the borderline of medicine, studies must be made to determine what relations there are, if any, between a given projectile, powder stain, powder residue, cartridge case, and weapon, and a given wound. Somewhat farther afield are studies of disputed documents, of footprints, the tracks left by vehicles, impressions of jimmies, and marks left by the use of oxy-acetylene torches and explosives in connection with safe-cracking.

The character and extent of the equipment necessary for the several purposes named in the preceding paragraph, and the character and extent of the knowledge and skill necessary for the practical utilization of that equipment in the everyday detection of crime and the punishment of criminals, are such as now preclude their utilization by the average community. Only the states themselves, and in a few instances the larger cities within the states, are able to finance such activities. Moreover, in communities of average size or below, occasions for the utilization of many of the devices necessary for the purposes named and for the services of persons skilled in the use of those devices are so infrequent as to make the cost of operation unduly great, when compared with the units of work done.

The only logical procedure seems to be for each of the several states to provide and maintain the equipment and staff necessary for the service of all communities within its borders. The establishment of such agencies by the several states would in no way interfere with the establishment of similar agencies by such municipalities as need and can afford them. On the other hand, equipment and staff maintained by the state would be at the command of all counties, municipalities, towns, and villages within its jurisdiction, as they might need them from time to time. The cost of such activities might well be borne by the state. If, however, the state should deem it advisable to impose a part of that cost on counties, municipalities, towns, and villages, a definite schedule of charges might well be established.

Such a state organization as has been outlined above would serve not only to aid directly in the detection and punishment of crime, but also to serve indirectly toward that end by contributing toward the proper instruction of the peace officers and agents of the state, and of every county, municipality, town, and village, in methods for the investigation of crimes and suspected crimes. Such officers and agents could be taught how best to collect and preserve such evidence as the circumstances afford and how to avoid destroying or marring essential evidence. State agencies of the type named might well have connected with them experts qualified

to keep accurate records of crime and crime prevention, so as to measure the success or failure of activities for those ends.

Organizations such as have been described have been variously dubbed medico-legal institutes, criminologic institutes, and scientific crime detection laboratories. The name seems hardly material, although the name last stated is hardly broad enough to cover the true functions of such organizations.

It seems to your committee that action to promote the establishment of such organizations in each of the several states would be in the interest of good government. Your committee recommends, therefore, that it be authorized to take action toward that end, working in conjunction with and through the Bureau of Legal Medicine and Legislation."

The Board of Trustees have acted favorably, and Dr. Woodward says: "I bring this matter to your attention in the hope that the Kentucky State Medical Association at its approaching meeting will take action in support of this movement, and will endeavor to bring about the establishment of such an institute in the State of Kentucky."

Your committee recommends the adoption of the suggestions contained in this report, and so moves.

The motion was seconded and carried.

PRESIDENT REDDICK: We will now have the report of the Auditing Committee, Dr. H. B. Scott, Louisville, Chairman.

H. B. SCOTT: The report is published in the JOURNAL. We submit that as our report and move that it be accepted.

The motion was seconded and carried.

PRESIDENT REDDICK: Report of the Committee on Health Problems in Education, W. B. Moore, Cynthiana, Chairman.

#### REPORT OF COMMITTEE ON HEALTH PROBLEMS IN EDUCATION

W. B. MOORE: Your Committee on Health Problems in Education feels its responsibility very deeply, and it desires through this report to transfer that sense of responsibility to the medical profession of Kentucky. People are guilty of belief in medical superstitions, of self-diagnosis, of self-medication, of the use of patent medicines, of the patronage of cultists more ignorant than they are themselves, about the cure and prevention of disease, of dietetic faddists, of all forms of quackery, because when they were children the medical profession did not do its duty in their education. Just in proportion as we reach the children of this generation will we succeed in making those of the next healthy, useful and happy citizens, good fathers and mothers.

Fundamental in such a program is a study of the organization itself, and your committee would call attention to the excellent study



of the health laws and rules and regulations of the State of Kentucky which has been compiled by the Woman's Auxiliary for use in the schools and colleges, and as a basis for the program for women's and other organizations. It is hoped that this will be followed by a careful, painstaking study of personal hygiene and environmental sanitation as it should be applied by the people and in the various sections of Kentucky. The impossibility of self-diagnosis should be made evident to every thoughtful child. The danger of self-medication is known to every physician and should be interpreted to the youth of the land. When we have taught the children that the chemistry they study, the physics and physiology and biology are all applicable to the problems of their daily life, it will be impossible for faddists and quacks to mislead and deceive them to their hurt.

We believe we should recognize as a profession that the children in school form a group which should be inspected regularly with a view to finding whether they apparently deviate from the normal to such a degree that their parents should be advised that they should consult their dentists or physicians. It has been clearly demonstrated that infants should be immunized for diphtheria and vaccinated for smallpox before their first birthday. If the family physician has not attended to these important immunizations before the child starts to school, there is no question but that these life-saving procedures should be taught as necessities and as part of the curriculum. Wherever it is possible, children should be taught the importance of the annual examination by their physicians. Where this is woven into the procedure of the school throughout the grades, high school and college, provided it be done properly, they will enter their lives with a determination to keep their physical machinery as nearly right as possible. Children should be taught the importance, while they are children, of seeing their physicians early in illness or immediately after accident.

Your committee recommends the commendation of the policy of the State Board of Health for the development of full-time county health departments to secure these ends. We commend their plan of having frequent meetings of the county medical societies to discuss the purposes, objectives and plans of these full-time health departments. We recommend that the county societies develop such demonstrations of methods of procedure for immunization and treatment of disease as will promote popular education on these subjects, and we pledge the medical profession of Kentucky in every way possible to prevent and alleviate unnecessary and preventable illness through education.

These procedures, these methods, are sim-

ply indicative of the things that should be done for the children of our commonwealth while they are being educated, that they may develop into wise manhood and womanhood. If they have learned to care for their bodies it will be easier to teach their healthy minds and keep clean their precious souls.

W. B. MOORE, Chairman

J. V. JOHNSON

H. M. BERTRAM.

I move the adoption of the report.

The motion was seconded.

S. C. SMITH, Ashland: Up in the State of Oregon they have a system of playing politics. The society plays politics, and I think it is about time that the Kentucky Medical Association played politics. Whenever a man announces himself up there as a candidate for the senate, the members of the medical society go out and find out how he stands on health problems and on medical legislation. It is my judgment from reading the reports of the way things are there that they have one of the most ideal situations of any state in the Union.

In our local paper, and I suppose in many of yours, we see an advertisement with two hands upheld, "Our only tools," the implication being, if you will read deeply, that there are no brains needed, all you need is two hands. There are various other cults that advertise. We are not permitted to advertise because it is considered unethical that we do. I don't know how we would do it ethically if we undertook it.

There has been a lot of legislation passed in this state in recent years that never should have been passed. If this society had been vigilant and if we had discarded our old idea that we shouldn't play politics, I think some of it never would have been passed. I think it is about time that the society got busy and took more interest in politics, especially as regards men for legislative office who have to do with making our health laws and passing regulatory acts governing the practice of medicine and cults.

The motion to adopt the report was carried.

PRESIDENT REDDICK: Dr. Smith's remarks are very timely.

SECRETARY McCORMACK: Our legislators do just exactly what we want them to do; I don't mean what you and I want them to do, but what we, the people, want them to do. They are responsive to the people. Nearly every man in the House and Senate in Kentucky is an honest man. They are all just like we are. There are varying degrees of competency among them, but they want to do right. It is very rare that there is a man who is dishonest. There are a great many things they don't know about. There is but one way they are going to know about med-

ical and health matters, and that is for the doctor in whom they have confidence to sit down and explain the thing to them.

I have had to come in very intimate contact with the legislature for a long time. The difference between the way the cultists do the thing and the way we do it is that they are taught legislation and about the violation of the laws and things of that sort, and how to influence legislative assemblies, and they are taught too little else. If there is a cultist from your county who wants legislation, he carries around a petition and gets it signed, not by a few, but by hundreds of men; I have seen them signed by thousands of men and women, of course who haven't the slightest idea what they are signing, who don't know a thing in the world about it, but it was the only request made of them. The member of the legislature doesn't know anything about it; he couldn't have spelled the name of the cult if he had tried, but it was the only thing he knew about, and apparently the majority of the people of that community wanted that thing done. If he has been informed at home (and he has been in a great many of the counties) by his physicians about these things beforehand and what they mean, there is no difficulty at all, except occasionally in the heat of politics when a political organization gets wrong, and then they all go wrong together because they are banded together in an organization. As a rule they don't divide on political lines; you can usually tell by the member in the legislature whether the medical profession in that particular district is active. Now is the time to perform. The members of the legislature are in the same form in which concrete is when it is first poured, they are malleable, and that is the only stage during which they readily respond. A baby's footprint or handprint or the print of a dropping leaf is there permanently, and now is the time to make the impression because they will listen to you. After they get to Frankfort they are terribly busy.

I have seen as many as 5,000 telegrams come to a legislator from a rural county in one day, asking him to vote for or against a proposition. That is done by a systematic propaganda. I had a very revealing instance of it last winter. While going to Washington, I stopped at a hotel in West Virginia when they were discussing a general sales tax in the legislature. I happened to go in the telegraph office adjoining the hotel to send a telegram back home, and heard the telegraph operator telephoning to a number of men in town that they could send telegrams to their member of the legislature asking him to vote against the sales tax, for 20 cents apiece; they had had a telephone message from the manager of the telegraph

company that that could be done. She said, "I have already gotten up 160, and I am getting others." That is a form of organization that is carried on very constantly. It is important that our members be inoculated so they are not open to such attacks; if you have told them and impressed them correctly with the purposes of this profession, with its objectives, there is no difficulty about handling them, there is not a bit of difficulty in the world about defeating any measure sponsored by special interests. Whenever he represents any crooked thing before the people and it is exposed, that settles that matter.

I have in my pocket a letter that was distributed over in Woodford County, urging them to vote against one candidate for the legislature over there because he voted against the chiropractors and for the medical profession. Similar letters were sent in county after county all over the state. In Senator Brock's district there were thousands of such letters sent in support of his opponent because he had broken with his party in support of the medical profession. That sort of thing is happening over the state.

Just in proportion as we make that plain to our members and explain to them what it means, and do it now, will we be able to be in the position of overcoming the things that Dr. Smith referred to.

Dr. Smith was present last year, and in the last session assisted very definitely in the defeat of a bill introduced by a man who had absolutely no knowledge of what he was doing, which would make it an offense punishable by fine and imprisonment to vaccinate anybody.

S. C. SMITH: There was one clause in that bill that if a patient vaccinated by a physician dies within five years, that doctor should be charged with murder.

SECRETARY McCORMACK: You would have been astonished at the bunch of half-wits there to support it—intense, sincere, misguided men. They didn't have very much influence when such men as Dr. Smith and the other members who were there that day appeared before the committee, but those things are dangerous unless we have seen our members. Lawyers busy in their law practice see that no bills are passed that do any harm to the courts or to the practice of law but they don't know a bit more about medicine than they were taught in school. That is the reason I was glad to read Dr. Moore's able report, putting the emphasis on the fact that we as doctors ought to go to the children in the schools, we ought to talk to school children whenever we get a chance, we ought to talk to teachers' associations and organizations, and particularly to throw our influence into the great teacher training institu-



tions of the state, that we may help teach them that science and humanitarianism combined make the medical profession their greatest servant. If we do that we can always win in these things. While temporarily and every now and then things that irritate us will happen, we find that by working together along those constructive lines we are able to get somewhere.

I am extremely glad Dr. Smith brought the matter to the attention of the House. I hope we will take it very much to heart as we go back home and see our members, and a radical operation probably will not be necessary. In Fayette County last time they performed a radical operation, and did it very effectively and very well indeed, and I think it will be a long time before any member will come from this county who won't be representative of the best interests of the people and, so far as public health and medical matters are concerned, representative of the best attitude of the medical profession. That always will be the case if we will do our job.

S. C. SMITH, Ashland: I think that ought to be brought up before the Association in the general session.

SECRETARY McCORMACK: The Chairman of the Council is required by the by-laws to present at the last session of the general meeting anything from the House of Delegates that it thinks should be presented, and I know Dr. Gardner will very ably present any thing that you desire him to bring before the general session.

S. C. SMITH: I move that this matter be brought before the general session.

The motion was seconded and carried.

PRESIDENT REDDICK: Report of the Committee on Postgraduate Course, Dr. Philip F. Barbour, Chairman.

#### REPORT OF COMMITTEE ON POST GRADUATE WORK

PHILIP F. BARBOUR, Louisville: The Committee appointed on postgraduate instruction begs to report that the attendance at the course this year was very satisfactory. There were forty-three registered, seven of whom were from out of the state. Five or ten others attended the various classes but did not register. This is a gratifying increase in attendance over the previous two years. About seventy doctors took part in the instruction, and thanks are especially due to Dr. Benjamin Brock and his co-workers at the Waverly Hills Sanatorium for the valuable and intensive instruction in the diagnosis and treatment of tuberculosis.

A questionnaire was sent to each of the attending physicians, asking for suggestions looking to the improvement of the course of instruction to meet the needs of the attending

doctors. We are glad to say that the suggestions showed that the course was most acceptable. Certain ones desired instruction in some particular line, which, of course, was to be expected, but the great majority were satisfied.

The Committee suggests that the course be given again next year, and that such changes be made in it as the four years' experience would suggest.

Respectfully,

PHILIP F. BARBOUR, Chairman.

A number of other states that tried out postgraduate instruction found out after a year or two that the attendance got so small that the course had to be abandoned. This last year, the fourth year of our course, we had almost as large an attendance as we had at the first year's work.

A motion was regularly made, seconded and carried that the report be adopted.

W. E. GARDNER, Louisville: There is a matter that Dr. Pfingst asked me to bring before the House of Delegates. I had hoped to discuss this matter somewhat further with Dr. Griffith of Owensboro, who is a member of the Council, before presenting it, but he doesn't seem to be around.

Dr. Pfingst called my attention to the fact that the Rotary Clubs of the state are initiating a movement to provide for a state commission for the care of the indigent child and adult blind, to operate somewhat similarly to the Crippled Children's Commission. As we know, the state now makes provision only for the indigent blind of the ages between six and eighteen years. It is felt that perhaps there are considerable numbers of children and adults in the state who might come within the province of such a commission.

Sentiment was expressed last night about the advisability of asking the state to provide further commissions for people who are physically handicapped. I don't know just how the establishment of such a commission might appeal to this House of Delegates, but in order to get it before the House for discussion I will move that the House of Delegates endorse the movement which has been initiated by the Rotary Clubs of the state for the establishment of a state commission for the care of the indigent child and adult blind.

SMITHFIELD KEFFER, Grayson: We have a Board of Charities and Corrections in this state already, and personally I don't believe in having so many commissions. We have some commissions in the state that we would do better without. Let's not get a multiplicity of them. I am perfectly willing that that be given over to our Board of Charities and Corrections, and I think they would handle it and handle it easily. They handle

the blind school all right, they take care of the children from birth, and they get them young at the blind school. I don't know why that might not be added to their labors.

It has been suggested that we have fewer members of the Board of Charities and Corrections and pay them all. The Commissioner or the Chairman is the only one so far that has been getting a salary for a number of years. That work has grown to such an extent that it is really a great sacrifice and loss of time for busy men and women to serve on that Board, especially when they get nothing for it. We could well afford to pay three of our men and women, whichever we select to look after that, and pay them a salary commensurate with what they do. I think it is asking too much of good citizens to expect them to waste a week or ten days every month looking after things for the State of Kentucky and doing it for nothing.

I think this might well go to them, and when we get this new Board organized, we have a right to demand a report. Let's try to confine ourselves to one board and not have so many.

W. E. GARDNER, Louisville: I think perhaps the child and adult blind would feel some embarrassment at being put under the supervision of the State Board of Charities. The idea is not to provide an institution for their care, but to make a survey and ferret out the cases that require treatment, operation, etc. A great many of the eye men, I understand, are willing to give a great deal of their time for this charitable work. The idea is not to provide a home or institution for their care.

JOHN W. SCOTT, Lexington: I think the fact that men like Dr. Griffith and Dr. Pfingst, and Dr. Gardner, who, of course, is not in that line, have given this their thought should weigh very heavily with us. As I said in a previous session of the House I am a little disturbed by the tendency toward having commissions for the treatment of this, that, and the other thing, yet I think it is not well to start to curb them now. Give it a little more rope. If we appoint a commission for this and a few more commissions, they may see their errors. For my part, I am in favor of the adoption of this report.

J. N. BAILEY, Paducah: I have not heard this matter mentioned before, I have not heard it discussed, and I don't know enough about what the intention of this commission is to intelligently represent the county that sent me here as a delegate. It occurs to me that unless the rest of the delegates are better informed than I am, it would not be amiss to appoint a committee to investigate and inform the delegates what we are getting upon. Then we can go back to our county organizations and report what was

done.

Dr. Gardner's motion was regularly seconded and carried.

The meeting adjourned at five-thirty o'clock.

#### THURSDAY MORNING SESSION

SEPTEMBER 10, 1931

The fourth and last session of the House of Delegates convened at eight o'clock, President Reddick presiding.

The Secretary called the roll.

PRESIDENT REDDICK: A quorum is present.

The first thing will be the final report of the Committee on Credentials.

H. B. SCOTT: We wish to submit the roll call as the report of the Committee.

PRESIDENT REDDICK: Next in order is the election of officers.

Nominations are in order for President-Elect of this Association.

JAMES H. PRITCHETT, Louisville: Mr. President and Gentlemen: We are about to bestow upon one of our fellows the greatest honor in the power of this assembly. This honor carries with it a great responsibility, and therefore we must choose wisely and well.

As I look back through the years upon those men who have been President of this Association, I recall the names of Cecil, of McMurtry, of Matthews, and in latter years the names of Abell, Frank, Woodard, McClure, Hanes, Blackburn and our present President, Dr. Reddick, all able men.

I have in mind a gentleman who suffers nothing in comparison with these gentlemen, a man whom you all know, a man whom you all love, a great churchman, an eminent scholar, a great and outstanding pediatrician of the South. This man has been for years a great educator at the University of Louisville, second to none in the country. He has reaped honors from other states outside of his own, and I deem it wise at this time that this man come into his own.

A year or two ago at the request of the University of Louisville School of Medicine and the State Board of Health, this man, almost single-handed, under many obstacles, under many disappointments, under many discouragements, put over himself the graduate school course of medicine at Louisville. From a very small beginning this has become one of the greatest things in the South. Only this past summer in my travels throughout the South in five separate states, various men said to me, "That is a wonderful course you give up there at Louisville." They heard about it and about our State Board of Health.

I wish at this time to put in nomination the name of one of our greatest men in Kentucky's history of medicine, Dr. Philip F. Darbour, of Louisville.

J. W. SCUDDER, Calhoun: It has been my



privilege and pleasure to know Dr. Barbour possibly in a way that the rest of you gentlemen have not known him. As a boy going to Louisville to study medicine, Dr. Barbour was one of the first men that I encountered. I feel that words are useless on the part of any of us to try to describe Dr. Barbour to an audience like this, by each individual of which he is known. We don't have a more scholarly man in our society; we don't have a man who is more modest, a man who will fill the presidency of this organization with greater credit to himself and to the organization than Dr. Barbour.

As a school boy before taking up medicine, Richmond being my home, I had the pleasure and privilege of having Dr. Barbour's father, who was also a doctor, though not an M. D., as my teacher. Knowing Dr. Barbour's family as I do, Dr. Barbour could not well have failed to be the type of individual that he is and has proven himself to be. Knowing the family as I do, knowing Dr. Barbour as I have known him, it gives me great pleasure to second this nomination.

GEORGE W. BUSHONG, Tompkinsville: I wish to move that we elect Dr. Barbour by acclamation.

The motion was seconded.

JOHN W. SCOTT, Lexington: I arise to a point of order. I think the Association is unanimous in favor of Dr. Barbour, but it seems to me it ought to be done in the proper legal way, in the most expeditious, but at the same time regular way.

SECRETARY McCORMACK: A motion can be made that the nominations close and that the Secretary cast a ballot, but you have to trust to the Secretary; you can't instruct him to cast the ballot for any particular individual.

JOHN W. SCOTT: I move, Mr. President, that the Secretary be instructed to cast the ballot of the House for President.

The motion was seconded and carried unanimously.

SECRETARY McCORMACK: Mr. President, I have the honor of casting the ballot of the House for President-Elect, for Dr. Philip F. Barbour.

PRESIDENT REDDICK: Dr. Barbour has been unanimously chosen President-Elect of the Kentucky State Medical Association. (Applause.)

Nominations are now in order for Vice President.

LOUIS FRANK: I should like to place in nomination a representative of the younger members of the profession from the other end of the state, the far eastern end, the turbulent area at the present time. I should like to nominate Dr. R. C. Petty, Lynch, as Vice President.

W. M. MARTIN, Harlan: Dr. Petty is a young man, holding one of the most respon-

sible positions in the State of Kentucky today as a doctor. He has been associated with the United States Coal and Coke Company for quite a while. I learned more from a lot of teachers of medicine about Dr. Petty's ability than I had ever known before. I have been told by some of the best surgeons in the City of Louisville, by some of the best internists, that Dr. Petty, during his school career, was one of the best medical students they had in the City of Louisville, and also one of the best interns in the hospital. I arise to second the nomination of Dr. Petty.

C. G. DAUGHERTY, Paris: I wish to place in nomination the name of L. C. Hafer.

C. W. SHAW, Alexandria: Dr. Hafer is a real physician, thoroughly interested in organized medicine, and I should like to second the nomination.

J. N. BAILEY, Paducah: I have in mind a man who has been practicing medicine for nearly fifty years. I want to say all the nice things about him that have been said about the other candidates and then add that there has not been a man who has died in Graves County of a natural death or sudden death of which this man has not pronounced the medical obituary. They don't feel, in Graves County, that they can leave this life and go on to the other without the guiding hand of this particular man. He is not only a good doctor, but he is a community leader, he is a leader in organized medicine. He is a man who has the happy faculty not only of thinking, but of provoking his listeners to do thinking for themselves. This man is Dr. E. A. Stevens, Mayfield.

LOUIS FRANK, Louisville: I believe the Constitution provides for the election of three Vice Presidents without the designations first, second, or third. I therefore move you that the nominations be closed and the Secretary be instructed to cast the ballot for three Vice Presidents.

The motion was seconded and unanimously carried.

SECRETARY McCORMACK: I have the honor of casting the ballot of the House for Vice Presidents.

PRESIDENT REDDICK: Drs. Hafer, Petty and Stevens are elected Vice Presidents of this Association.

We will now proceed to the election of a delegate to the American Medical Association to succeed Dr. Hendon.

E. B. BRADLEY, Lexington: Mr. President, for some time the surgeons have had this honor of being delegate to the American Medical Association, and I think in fairness to the other members of the profession it is time to change from the surgeons at least to another branch of medicine, and being an internist, that is the particular branch of which I thought. I have in mind a man for

this position who I know will represent us most creditably, a wonderful internist, a good speaker, a fighter, and in every way a wonderful man. The man I want to nominate is Dr. Virgil Simpson of Jefferson County.

YANDELL ROBERTS, Louisville: I want to second the nomination.

W. M. MARTIN, Harlan: I move the nominations be closed and that the Secretary be instructed to cast the ballot for delegate to the American Medical Association.

The motion was seconded and carried unanimously.

SECRETARY McCORMACK: Mr. President, I have the very distinguished honor of casting the ballot of the House for delegate to the American Medical Association for a two-year term.

PRESIDENT REDDICK: Dr. Virgil Simpson is elected by this House as delegate to the American Medical Association for two years. Orator in Medicine.

E. R. PALMER, SR., Louisville: I wish to place in nomination for the place of Orator in Medicine, a man who has done as much as, if not more than any other man in the Association for organized medicine and for the general welfare of the doctors and members of this community. He is a man who in his medical career has been probably in every county of the state time after time, and is known personally by every doctor in Kentucky. He is a first-class physician, a gentleman, a scholar, and a scientist. I wish to nominate Dr. P. E. Blackerby of Louisville.

A. W. NICHOL, Louisville: I second the nomination.

W. E. GARDNER, Louisville: I love Dr. Palmer and I love Dr. Blackerby, and under any other circumstances I would most heartily support this nomination. I feel at this particular meeting we have all been very much impressed with the character of the program that has been presented to this society for its consideration. We all know that one of the Lexington men, an internist, has done hard work in the preparation of this program; he has sat in the sessions on the front row, seeing that every man who had been selected was present delivering his paper, and I am sure that he would ably represent the society as Orator in Medicine for the coming year. I should like to place in nomination Dr. C. N. Kavanaugh of Lexington.

W. O. JOHNSON, Louisville: I second the nomination.

PRESIDENT REDDICK: Are there any other nominations for Orator in Medicine? If not, I will appoint as Tellers Dr. Martin, Dr. Redmon and Dr. Hunt, and they will spread the ballot.

Dr. Kavanaugh having received a majority

of all the votes cast, I declare him to be elected Orator in Medicine for the ensuing year.

We will now receive nominations for Orator in Surgery.

LOUIS FRANK, Louisville: We have had as Orator in Surgery, men representing general surgery, representing ophthalmology and otology, gynecology, urology, all the specialties, I believe, except the one that I have in mind. I want to place in nomination the name of a man who is practicing a line of special surgery which to me is one of the most fascinating there is, who is doing original investigative work, and who I am sure will give us not only a most learned discussion, but a most interesting paper, which will be interesting possibly to the laity and the profession alike. He is a young man, well trained, not a Kentuckian by birth, but from Missouri probably by descent.

I should like to put before this House for consideration, the name of Dr. R. Glenn Spurling as Orator in Surgery.

C. A. VANCE, Lexington: I should like to second the nomination. We have seen a good deal of Dr. Spurling's work in Lexington, and we all admire him and wonder at the good work he does.

C. A. DAUGHERTY, Paris: I move that the nominations be closed and the Secretary be instructed to cast the ballot for Orator in Surgery.

The motion was seconded and unanimously carried.

SECRETARY McCORMACK: Mr. President, I have the honor of casting the ballot of the House for Orator in Surgery.

PRESIDENT REDDICK: Dr. Spurling has been elected Orator in Surgery.

Nominations are in order for Councilor of the Third District to succeed Dr. Howard of Glasgow, for a term of five years.

C. A. VANCE: I think after a man has been Councilor for five years he has just really learned how to run the job. I nominate Dr. Howard to succeed himself.

E. R. PALMER, Louisville: I second the nomination.

JOHN W. SCOTT: I move that the Secretary cast the ballot for Councilor for the Third District.

The motion was seconded and carried unanimously.

SECRETARY McCORMACK: I cast the ballot of the House for Councilor for the Third District for a term of five years.

PRESIDENT REDDICK: Dr. C. C. Howard, Glasgow, is elected.

Councilor for the Eighth District to succeed Dr. Shaw of Alexandria.

YANDELL ROBERTS: I nominate Dr. Shaw to succeed himself.

V. A. STILLEY, Benton: I second the



nomination, and I move that the Secretary cast the ballot of the House.

SECRETARY McCORMACK: Mr. President, I feel a very distinct honor and a very distinct degree of personal affection in casting the ballot of the House for the Councilor for the Eighth District.

PRESIDENT REDDICK: Dr. C. W. Shaw, of Alexandria, has been elected Councilor for the Eighth District for a term of five years.

SECRETARY McCORMACK: The place of meeting is fixed by the By-laws and will be Louisville next year. The next meeting, then, will be in Western Kentucky following that, in accordance with our custom.

I have the following privileged resolution:

"An inscrutable but all wise Providence has removed from our midst our associate and fellow member, Dr. William A. Jenkins, in the height of his professional fruition.

During his years of membership in this Association we have fully appreciated his loyal and steady efforts for its advancement, his scholarly professional attainments and the sterling integrity and high character evinced throughout his career.

We feel keenly the loss of a valued member, a distinguished teacher, and an eminent practitioner. We desire to write into the record our appreciation of his worth, and an expression of our deep regret at his passing, and further to express our profound sympathy with his family in its bereavement and sorrow."

Upon motion made by Dr. Nickell, seconded and unanimously carried, the resolution was adopted by a standing vote.

SECRETARY McCORMACK: I have the following report of the Hospital Committee.

I beg to make the following report in regard to the establishment of county hospitals:

"After thorough consideration of this subject we have come to the following conclusion: Hospitals in each county would be impracticable and could not be maintained. Community hospitals, maintained by as many as three to six counties, are by far the most satisfactory and economical. These should be built by public subscription and free gifts, controlled locally by a board, and not interfered with by some organization that has donated to the hospital. The maintenance of these hospitals is the big problem. Legislation which should apply to the said counties is the only fair way to meet the deficit. Surveys should be made of the state in regard to community hospitals, and legislation assisting them should be introduced at the next legislature.

Respectfully submitted,

C. C. HOWARD, Chairman

I move the adoption of the report.

The motion was seconded and carried.

PRESIDENT REDDICK: We will now be pleased to have a report from the Chairman of the Medico-Legal Committee, J. B. Lukins, Chairman.

#### REPORT OF MEDICO-LEGAL COMMITTEE

J. B. LUKINS, Louisville: Mr. President and Gentlemen of the House: This has been a rather busy year for the Medico-Legal Committee. It is said that in hard times law-suits increase. I suppose attorneys' incomes, like doctors' incomes, are cut down in times of depression. However, I am glad to say that the work of the Medico-Legal Committee at this time is in by far the best condition in which it has ever been since I have had anything to do with it. We know exactly where we are, we are getting better results, and we know better how to go about handling cases when the suits are filed.

Our records show only three old cases are still pending. These cases date back to 1924 and 1925. Of course, we can't take these cards out of the file, because no court order has ever been issued, but the chances are that we never will hear from them again, and I might say right here that my records show that in the last four years about 80 per cent of these cases are never heard from again, so the best thing we can do when suit is threatened or filed is to sit quiet and steady and not lose our heads.

Four other cases of long standing have had no action taken on them.

A number of threatened cases, dated 1927, 1928, 1929, have had no action taken on them. I don't think any of those suits ever will be filed.

Twenty-six cases, the most that we have ever disposed of, have been disposed of definitely since I made my last report one year ago. Nine of these cases were compromised. In one particular case, a \$1,000 verdict was given by the lower court to the plaintiff. We appealed the case. The Appellate Court affirmed the findings of the lower court, and we later settled for \$600 and court costs of \$183.35.

In another case a \$10,000 verdict was given against the defendants and was sustained by the Court of Appeals. This case was later compromised after the Court of Appeals decision, for \$6800.

One case went to trial (this case was in Louisville), and while the jury was out it was compromised for \$150. A few minutes after this compromise was effected, the jury came in and returned a verdict for \$750.

Fourteen of these cases were tried with direct verdict for the defendant.

I wish to say that I believe the majority of the judges and the lawyers, regardless of which side the lawyer is on, are our friends. We are usually treated pretty well and with a great deal of courtesy and respect by the

lawyers, and nearly every one of these cases we won on peremptory instructions from the judge.

It is of interest, I think, to mention this fact: In one case a suit was brought against three doctors jointly. Two of these doctors were members of the Kentucky State Medical Association; the third was not a member. For two of these doctors, the two who were members of our society, we obtained a verdict, instructions from the judge, throwing the case out of court. In that same case a judgment was obtained for \$2,000 against the doctor who was not a member of our society. Personally I don't think that ever will amount to anything, because it is still in court and a motion has been made for a new trial.

I am now going to tell you of the best decision that we ever had. It always has been a question in the State of Kentucky when a person could bring a suit for malpractice, some lawyers contending that it had to be brought within twelve months, and others saying any time within five years. During this year we had a case brought, a suit filed, twelve months after the treatment by the physician. This was demurred on grounds of limitation, that is that twelve months had expired and therefore the suit could not be brought. The lower court sustained our demurrer. The plaintiff appealed, using the five-year limitation. The Appellate Court affirmed the judgment of the lower court. We feel very happy over that decision of the Court of Appeals.

On the other hand, I don't advise any of you to go out and brag after the first year, or talk on the street corners, because we might be given trouble, but at the same time this is the most far-reaching decision we have ever had.

LOUIS FRANK, Louisville: Does that apply in case of a minor?

J. B. LUKINS: I think it would take a lawyer to answer that. I talked that over with two or three lawyers.

LOUIS FRANK: Some say that it is true and others do not think so.

C. A. VANCE: Would that apply also in the case of a woman patient? I had an opinion last year from two lawyers here in town who said that it did not.

J. B. LUKINS: That was before this decision was rendered, wasn't it?

C. A. VANCE: Yes.

J. B. LUKINS: This is the best decision by far that we have ever had. You are talking about where the woman was dependent on her husband for support. Up to this time that did not apply.

C. A. VANCE: Mr. Forcht has written me that it did not.

J. B. LUKINS: Mr. Forcht always held

that, but in the Court of Appeals it has been decided now, as I understand it, that there is a one-year limitation.

All the doctors in this room are leading doctors; you are all the leaders in your communities or counties. You can do a great deal to help me in this work. Nearly every doctor gets excited when he is threatened with a malpractice suit. I don't mean to compare Louisville to the rest of the state, but we have had much better court decisions there than we have out in the state, and a large part of that is due to the fact that the doctors stick together splendidly and a doctor will tell his whole story to us. One of the troubles we have had this year has been that a doctor does not tell the whole truth before the trial, and then when the lawyer gets him on the witness stand and brings out those facts, our defense lawyer is helpless. If you will lay your cards on the table and tell us all the facts when the suit is threatened or when it is brought, there are many little things that we can do to stop it right then, but if we don't know the facts we can't do a thing in the world to help. You men are leaders in your respective communities, and if you know about the case or can find out about it, if you get that doctor to write all the facts to me or to Dr. McCormack, or if you will get him to tell them to you and you convey them to me, we can do a great deal to win these cases.

As you know, we have our attorney employed by the year, who is anxious and willing to help in every case in the state. Of course, he can't go out and try the case in every county, but he can give legal advice.

We employ a lawyer to defend you in case of a malpractice suit, but we cannot employ more than one, and the truth of the business is that you don't need but one. When a doctor is sued for malpractice, he ought not to jump at conclusions; he ought to stop and think, perhaps confer with his best medical friend in the county, and then decide on a first-class, cracker-jack, good lawyer, and we will pay that lawyer his fee and have no trouble, but if he hires a lawyer here and a lawyer there, then everything is jumbled and when the case is finally settled there is a misunderstanding about who is to pay the fees. You doctors can take that home with you and be of great help to us.

W. E. GARDNER: Who is the attorney now since Forcht is dead?

J. B. LUKINS: Roy Curtis.

The best way in the world to win these cases is to wear them out. I know, if Dr. Nichol were sued tomorrow, he would like to be exonerated, he would like to go to the mat and have it proven in court that it was not his fault, but my idea is that that is not the best way. Stay out of court as long as



you possibly can. If you will wear these cases out, just put them off and postpone them, we will win nine times out of ten. Our records plainly show that eight times out of ten in the last four years we have won that way. We have six or eight right here now that I know we will never hear from again.

SMITHFIELD KEEFER, Grayson: Don't you think that is why we have you fellows do these things?

J. B. LUKINS: This is considerable work and trouble, but you will make it much easier if you try to tell us the facts.

Just recently we had a case that I didn't think there was anything to at all, and I think so still, but the doctor who was sued did not tell me, he did not tell Mr. Curtis, he did not tell anybody, so far as I know, all the facts, until he was put on the witness stand, and then it was an entirely different picture from what he had told us. Of course, the defense was taken off its guard, so to speak, and the results were not entirely satisfactory, although I think we will work it out yet.

C. A. VANCE: I move the adoption of the report, and I should like to make this suggestion: If the incoming program committee thinks it is wise, I think it might be well to have Dr. Lukins read us a paper at the opening meeting next year about this subject. There are just a few of us here, and the profession ought to know about it, and know a lot about it.

PRESIDENT REDDICK: We will try to keep that in mind.

The motion to adopt the report was seconded and carried.

PRESIDENT REDDICK: Gentlemen, I note the presence of our new President-Elect. I will ask Dr. Martin, Dr. Pritchett and Dr. Hunt to escort him to the front.

Dr. Philip F. Barbour was escorted to the front of the room.

PRESIDENT REDDICK: Dr. Barbour, you have been unanimously chosen President Elect of this Association for the coming year. (Applause).

PHILIP F. BARBOUR: Gentlemen, I feel very unworthy of the distinguished honor you have conferred upon me. It is the greatest honor to come to a doctor in Kentucky, I think, to be elected President of a great group of doctors such as we have in this state. Our Association has had splendid achievement in the past, and has had a splendid group of fine doctors to lead it. I cannot hope to equal their effort, but I pledge you the best that is in me to try to keep up the good work and to carry the standard of our medical organization a little bit further, perhaps, and with your help and counsel and with the spirit that animates all of you, I look forward to a fine year's work.

I hope that when I lay down the gavel it may be with the feeling that I have merited in some way the confidence of my good friends. (Applause).

LOUIS FRANK: I move you that this House of Delegates, not only in behalf of itself, but in behalf of the Association and the profession of the state as a whole, extend its heartfelt thanks to the Medico-Legal Committee and particularly to its Chairman, Dr. J. B. Lukins, for the excellent work they have done, and that it be made a matter of record on the minutes.

The motion was seconded by several delegates and unanimously carried.

SECRETARY MCCORMACK: Resolution with reference to offer of convalescent serum.

Since the State Board of Health has kindly offered to secure and distribute convalescent serum to be used in treatment of anterior poliomyelitis at no cost, we recommend that some action be taken by this body with reference to such offer.

It is the belief that whereas, for the present, no other serum has proven of definite value, the convalescent serum is, as far as we know, the only logical preventive or treatment. We recommend or suggest that certain cities be designated as stations from which the serum can be obtained, for instance, such towns as Louisville, Lexington, Ashland, Bowling Green, Owensboro, and Paducah. In this way the serum could be quickly obtained throughout the state.

We further suggest that the State Board of Health, especially Dr. Lillian South, be given thanks for this offer.

JAMES H. PRITCHETT

J. D. ALLEN

LOUIS FRANK: I move the adoption of the resolution.

The motion was seconded and carried.

#### REPORT OF THE COMMITTEE ON PREVENTION OF GOITER

"A request was sent to each member of the committee for a statement of information or opinion relative to this subject. A reply was received from two members, enclosed with this report. Nothing has developed within the last year to disprove the idea of endemic goiter being a deficiency disease, although considerable experimental work has been undertaken to disprove this idea. So far as your committee is aware, nothing has developed to modify the recommendation made in previous reports; that is, the administration of iodine:

1. Should be given under the care of a physician.

2. Period of life, namely, during adolescence and pregnancy.

3. Method of administration, either a small dose is given weekly on a certain day, Sunday morning, for instance, or a dose is

given daily for ten days, every six months.

The first letter is from Dr. J. N. Bailey, Paducah:

Your communication of August the 25th asking for suggestions on our committee work, the prevention of goiter, received.

I am not advised as to how much work has been done by this committee. It is my information that the most available prevention we have is the administration of iodine in some form, and it seems to me to be the consensus of medical opinion as I understand it that the most practical way of administering the necessary iodine is salt containing iodine.

We realize it is necessary to furnish enough iodine in the human being, better done during adolescence, from which the thyroid gland can secure material to keep up its proper function.

The above being facts, the best results would probably be obtained from our committee work by educating the masses through our profession of the necessity of taking iodine and the proper amount of iodine to be taken. My suggestions for the possible ways of doing this would be through the medical journals, *Hygeia*, the local press, and it occurs to me that much good could be done if this subject were properly presented to the Kentucky Educational Association and the Parent Teachers League.

Dr. J. W. York, of Canmer, says:

"The administration of iodine for one month twice a year to young girls, especially those in families giving a history of goiter, as I have noticed a family tendency toward this disease through three generations in some cases, is advisable. The family physician should strongly advise the administration of iodine to all young girls as a prophylactic against goiter.

R. R. ELMORE, Chairman.

I move the adoption of the report.

The motion was seconded and carried unanimously.

PRESIDENT REDDICK: I believe that closes the program. I want to thank you all for your attendance.

SECRETARY McCORMACK: I move that the thanks of the House be extended especially to Dr. Redmon, Dr. Vance, Dr. Chambers, and their associates on the various committees representing the Fayette County Medical Society for the excellent arrangements that have been made for the meeting. No meeting has ever been run more smoothly so far as its exterior arrangements have been concerned.

I should like to include in the resolution our gratitude to the authorities of the University of Kentucky, and especially to the President, and to the people of Lexington

and the authorities of the Lexington Country Club.

Mr. President, I should like especially to thank Dr. Kavanaugh for the very excellent program which has been arranged, it has really been a postgraduate school, and the essayists who have taken part in the program, and you sir, as President of the Association for the gracious manner in which you have presided and the effective conduct of the affairs during your administration.

SMITHFIELD KEFFER: May we include in that Transylvania University for opening up their library to us?

SECRETARY McCORMACK: Yes, I will include that in the resolution.

The motion to adopt the resolution of appreciation offered by the Secretary was seconded and carried unanimously.

LOUIS FRANK: Before you adjourn, under unfinished business I should like to say that last year I introduced two amendments to the Constitution and By-laws that I believe are to be acted on at this meeting. The first one was with reference to Article X of the Constitution, to be amended by the insertion in Line 9, I read now from the minutes of last year as printed in the Journal) of the following words: "Such vote shall be by a mail ballot to be furnished each member at the last known address of such member by the Secretary, and such ballot to be marked and returned within thirty days.

SECRETARY McCORMACK: I move the adoption of the amendment.

The motion was seconded.

S. C. SMITH: I should like to know to what that refers.

SECRETARY McCORMACK: It is in regard to a referendum of all the members. It just clarifies the situation. It is exactly what we have done on the two occasions when a referendum was taken, but it fixes a period over which the ballot may be cast. It should be counted thirty days after it is sent out from the office. It is only resorted to in great emergencies, as in the case of the insurance controversy a number of years ago, but it clarifies the situation, and we are fortunate that Dr. Frank brought the matter up, because it was not clear in the wording of the By-laws.

The motion was carried.

LOUIS FRANK: The other matter was an amendment to Chapter 3, Section 4, of the By-laws, which refers to the time given for reading of papers, to be amended by the addition of the words: "This rule may be suspended by unanimous consent of the General Assembly," so that the time of anyone reading a paper may be extended by unanimous consent only. One objection, of course.



would be that of the Secretary.

A. W. NICKELL: I move the adoption.

SECRETARY McCORMACK: I hope very much that this amendment will be voted down. It would be extremely embarrassing to the Secretary to object, as he always would, because it is absolutely impossible to arrange a program as provided by the By-laws, fix a time for the essay, and then have the essayist know that by coming in and asking unanimous consent he could embarrass everybody there by taking up the time that properly belongs to the essayists further down the program. If we have deviations from the program we absolutely ruin it. We have tried it time after time. Some of our Presidents permitted that sort of thing to be done, and it has absolutely ruined the program. I remember distinctly when one of our most distinguished members who had one of the best papers ever prepared to be presented to the Association was crowded entirely off the program because of a violation of the plain provisions of the By-laws. I hope very much that the amendment will be voted

down.

JOHN W. SCOTT: Mr. President, these programs are constructed with regard to the time that is allotted, that we have at our disposal. If time is added to one essayist it is necessary to take it from another. It is a thing that would be abused, even if it were occasionally useful. I am opposed to the resolution.

J. N. BAILEY: In order to bring the matter before House, I am going to move that this report be adopted, and then ask everybody to vote no on it. I move that the resolution be adopted.

JOHN W. SCOTT: As a substitute motion I move that the matter be laid upon the table.

The motion to table was seconded by Smithfield Keffer, and carried, with no dissenting votes.

SECRETARY McCORMACK: The Council has approved the current bills for the month and for the expenses of this meeting, and I move that they be authorized.

The motion was seconded and carried.

#### ACCOUNTS OF THE KENTUCKY STATE MEDICAL ASSOCIATION

1931			
Sept.	30—Voucher Check No. 1.....		\$492.50
	A. T. McCORMACK, M. D., Louisville,		
	To September salary, Secretary.....	150.00	
	To expense.....	325.00	
	To expense, State Meeting, Lexington.....	17.50	
		492.50	
	Approved by Council and Ordered Paid by House of Delegates.		
Sept.	30—Voucher Check No. 2.....		\$110.00
	L. H. SOUTH, M. D., Louisville		
	To September salary, Business Manager.....	100.00	
	To expense to Crab Orchard and Mt. Vernon and return.....	10.00	
		110.00	
	Approved by Council and Ordered Paid by House of Delegates.		
Sept.	30—Voucher Check No. 3.....		\$100.00
	J. F. BLACKERBY, Louisville		
	To September services rendered Committee on Public Policy		
	Approved by Council and Ordered Paid by House of Delegates.		
Sept.	30—Voucher Check No. 4.....		\$143.95
	ELVA GRANT, Louisville		
	To September salary, Bookkeeper.....	75.00	
	To honorarium.....	25.00	
	To expense, State Meeting, Lexington.....	13.95	
	To expense, State Meeting, 3 Pags % \$5.00 each.....	30.00	
		143.95	
	Approved by Council and Ordered Paid by House of Delegates		
Sept.	30—Voucher Check No. 5.....		\$30.50
	C. A. VANCE, M. D., Lexington		
	To expense as Councilor, 10th District		
	Approved by Council and Ordered Paid by House of Delegates		
Sept.	30—Voucher Check No. 6.....		\$24.98
	S. C. SMITH, M. D., Ashland		
	To expense as Councilor, 9th District		
	Approved by Council and Ordered Paid by House of Delegates.		
Sept.	30—Voucher Check No. 7.....		\$58.80
	B. P. EUBANK, Bowling Green		
	To auditing books and accounts of A. T. McCormack, M. D., Secretary and		
	Marshall McDowell, M. D., Treasurer, and Mrs. W. C. Dugan, Treasurer, Wo-		
	man's Auxiliary, for period September 1, 1930 to September 1, 1931.....	50.00	
	To railroad fare Bowling Green to Louisville and return, and three meals.....	8.80	
	Approved by Council and Ordered Paid by House of Delegates.	58.80	
Sept.	30—Voucher Check No. 8.....		\$5.00
	GRAHAM & LONGFREET, Louisville		
	To 1 day's attendance and reporting case Lizzie Shawley vs. Wallace Frank, M. D.		
	Approved by Council and Ordered Paid by House of Delegates.		
Sept.	30—Voucher Check No. 9.....		\$8.70
	STEPHENS & STEEGY, Williamsburg		
	To court costs in case J. W. Brown vs. S. S. Brown, M. D.		
	Approved by Council and Ordered Paid by House of Delegates.		
Sept.	30—Voucher Check No. 10.....		\$150.00
	HUFFAKER, HOGAN & BERRY, Louisville		
	To legal services rendered in case Shawley, etc., vs. Wallace Frank, M. D.		
	Approved by Council and Ordered Paid by House of Delegates.		

Sept. 30—Voucher Check No. 11—		\$15.75
ELECTRIC BLUE PRINT & SUPPLY CO., Louisville		
To 300 Prints—Floor plan for State Meeting, Lexington		
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 12.		\$52.00
AMERICAN MEDICAL ASSOCIATION, Chicago		
To 12th Edition, American Medical Directory	12.00	
To one single column cut and 2,500 inserts of Dr. James T. Reddick's picture	40.00	
	<u>52.00</u>	
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 13.		\$331.04
F. & V. MANUFACTURING COMPANY, East Providence, R. I.		
To 1,000 Emblem Buttons @ 25c each	250.00	
To 500 Bangles "Lexington 1931" @ 16c each	80.00	
Insured mail	1.04	
	<u>331.04</u>	
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 14.		\$1.50
LOUISVILLE TAXICAB & TRANSFER COMPANY, Louisville		
To hauling 18 boxes from Kentucky State Medical Association office to City Hospital and return during Post-Graduate Course		
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 15.		\$99.95
BUSH-KREBS COMPANY, Louisville		
To 25 cuts for Annual Number	96.12	
To 1 cut Dr. K. A. Fischer's paper	3.83	
	<u>99.95</u>	
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 16.		\$6.35
MEFFERT EQUIPMENT COMPANY, Louisville		
To 3 M 4x6 No. 1 White Cards		
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 17.		\$159.50
TIMES JOURNAL PUBLISHING COMPANY, Bowling Green		
To 250 Commercial Exhibits	6.25	
To 250 Applications for Space	7.25	
To 500 Letterheads and 500 Envelopes, Eye, Ear, Nose and Throat Section	6.50	
To 5,000 Billheads	15.00	
To 700 Annual Programs—10 Pages	122.00	
To 500 Reprints—University of Kentucky	2.50	
	<u>159.50</u>	
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 18.		\$556.64
TIMES JOURNAL PUBLISHING COMPANY, Bowling Green		
To 2,300 88 Page August Issue	520.76	
To 2 sets Inserts and Scoring	17.00	
To 40 Changes	8.00	
To Envelopes	15.00	
To Printing Envelopes	2.30	
	<u>563.06</u>	
Less Credit by Check No. 133	350.00	213.06
		<u>213.06</u>
To 2,500 100 Page September Issue	593.00	
To 1 set Inserts	5.00	
To 1 set Inserts and Scoring	8.50	
To 50 Changes	10.00	
To Envelopes	15.00	
To Printing Envelopes	2.30	
To 59,780 Ems to 6 point	59.78	
	<u>693.58</u>	
Less Credit by Check No. 139	350.00	343.58
		<u>343.58</u>
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 19.		\$20.00
UNIVERSITY OF KENTUCKY, Lexington		
To room for 5 assistants attending State Meeting at Lexington @ \$4.00 each		
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 20.		\$15.00
E. H. ROEDERER, Louisville		
To 200 Delegate Badges		
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 21.		\$70.00
MAYME SULLIVAN, Louisville		
To Honorarium	25.00	
To expense, State Meeting, Lexington	14.05	
To expense, for Baggage, Express, Watchman and Janitor	30.95	
	<u>70.00</u>	
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 22.		\$38.80
REBECCA CASSELL, Louisville		
To Honorarium	25.00	
To expense, State Meeting, Lexington	13.80	
	<u>38.80</u>	
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 23.		\$32.80
RUTH FLAGG, Louisville		
To Honorarium	25.00	
To expense, State Meeting, Lexington	7.80	
	<u>32.80</u>	
Approved by Council and Ordered Paid by House of Delegates.		



Sept. 30—Voucher Check No. 24.....		\$39.40
EMILY STECHER, Louisville		
To Honorarium.....	25.00	
To expense, State Meeting, Lexington.....	14.40	
	<u>39.40</u>	
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 25.....		\$25.00
J. G. OWSLEY, M. D., Italy		
To Honorarium.....		
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 26.....		\$671.95
MASTER REPORTING COMPANY, Chicago		
To reporting Annual Meeting of Kentucky State Medical Association, Lexington:		
House of Delegates.....	147.90	
Scientific Session.....	169.15	
Public Meeting.....	54.40	
Eye, Ear, Nose and Throat Section.....	97.30	
Abridging 9 Sessions.....	90.00	
Traveling Expenses for 2 persons.....	113.20	
	<u>671.95</u>	
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 27.....		\$155.00
COUNTRY CLUB, Lexington		
To 125 Dinners for Woman's Auxiliary Annual Dinner		
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 28.....		\$21.50
C. C. HOWARD M. D., Glasgow		
To part expense as Councilor of Third District		
Approved by Council and Ordered Paid by House of Delegates.		
Sept. 30—Voucher Check No. 29.....		\$12.50
RAMSEY SIGN SERVICE COMPANY, Lexington		
To hanging 3 street banners for State Meeting, Lexington		
Approved by Council and Ordered Paid by House of Delegates.		

J. H. BLACKBURN: I want just a moment to appeal to the members of the Kentucky State Medical Association for your attendance upon the Southern Medical Association meeting in New Orleans. As Councilor from Kentucky I want to ask that every one of you who can attend do so. Those who have been to those meetings know that they will have a program that will be well worth your time and attention.

SECRETARY McCORMACK: In supporting the suggestion of Dr. Blackburn, I am going to urge the members of the Association to join the Southern Medical Association and secure its Journal. It is a wonderful Journal, splendidly conducted; it has the answers to the problems that are confronting us constantly.

The Southern Medical Association is a purely scientific body; it takes no action on pub-

lic questions; it has a scientific program. Those of us who have had the privilege of attending it for many years know its value. The program at New Orleans promises to be a wonderful postgraduate course in a historical city that will be a delight to all of us.

W. M. MARTIN: I think we should give a vote of thanks to the Sergeant-at-Arms. I feel we owe him more this time than any other time; since his arrival there has been no one lost. He found out right away where all the meeting places were. I have been at the cafeteria only once, but he did more that day to see that the doctors had plenty to eat than all the waiters.

The motion to extend a vote of thanks to Dr. Owsley was seconded and carried.

Upon motion, the meeting adjourned sine die at nine-ten o'clock.

A. T. McCORMACK, M. D., Secretary

## ORIGINAL ARTICLES

## ROUTINE POSTPARTUM CARE\*

ALICE N. PICKETT, M. D.

Louisville.

From a dramatic standpoint, the puerperium represents an anticlimax. The dangers associated with the prenatal period are no longer feared. The anxieties and thrills of the delivery are past and the weary, oft-times sleepy, doctor is apt to fall into what might be called a postpartum slump. During this stage of psychological depression he has a tendency to leave the details of postpartum care to the nurse or lay attendant. Anticipating such a lowering of professional morale, it is well for each one of us to formulate a routine for the handling of normal cases. This should be so definitely defined in the mind of the doctor, that he could all but write it in his sleep. Certainly his orders should be written out and explained to the nurse or attendant before he leaves the house after delivery. It would facilitate matters, if the attending physician carried a typewritten copy of his routine order in his obstetrical bag. The obstetrician practicing in city hospitals has only to put one such copy into the hands of his head nurse. The development of abnormalities of course calls for modification. In formulating a postpartum routine, the following objectives must be borne in mind;—the prevention of postpartum hemorrhage, and puerperal infection; the restoration of the patient by proper rest, food, exercise and elimination; the securing of the normal involution of the uterus; the prevention of retro-displacements; the establishment of an adequate milk supply; and the proper care of lacerated tissues.

## EXAMINATION FOLLOWING DELIVERY

Before leaving a patient following delivery, the doctor should see to it that the uterus is well contracted and the amount of bleeding not excessive. The fundus should be found at, or a little below, the level of the umbilicus. A postpartum hemorrhage is to be anticipated when it rises high above the navel or lies low in the abdomen. The final pulse count and blood pressure reading if found to be normal, gives the doctor a sense of security well worth the trouble of his examination.

## COMFORT AND REST

After the physical and nervous strain attending even the most uneventful labor, the patient's first need is that of rest and quiet. Unless she is still drowsy from medication used during the labor, it is well to give

codein or morphine by hypodermic or codein grains  $\frac{1}{2}$  with aspirin grains 5 may be given by mouth. Often labor pains cause the multipara much suffering before the next visit of the doctor, and so it is a good plan to leave in the house some medication for the relief of pain, with the instruction that it may be used at any time during the puerperium for any pain or discomfort. Two or three doses of some sleep inducing drug may also be left to be used whenever necessary for insomnia, not occasioned by pain.

More important than medication, however, is the protection of the patient from annoyance by her friends and family. This protection is not so difficult to obtain as one might think. After all, the welfare of the patient is the thing most desired by her family and it is up to the doctor to explain to them how they may be of most assistance. Whenever a gang of people is found sitting about a patient's bed, it usually means that the medical director of the case has not made an earnest, tactful effort to prevent his patient being so tormented. Before leaving the hospital, I make it a practice to have a talk with the husband and some member of the patient's family, preferably her mother. Together we are usually able to work out some plan by which only two or at most three members of her family are admitted to the patient's room during the first week. For the two hours immediately following the mid-day meal, it is arranged that the patient be left absolutely alone, so that she may have a chance to sleep. During the second week, one or two friends are asked to come for a short while each day, the afternoon rest hour being held inviolate.

## FOOD

Simple, easily digested foods are given for the first forty-eight hours after which time a general diet may be resumed. This should include an abundance of green vegetables and fruits. Milk constitutes the most important single article of food. One quart should be taken daily, except during the period of marked breast engorgement. Besides its excellent nutritive qualities, milk contains the lime salts necessary to offset the great drain of calcium occasioned by lactation. The proper metabolism of the calcium ingested should be assured by a daily dram dose of cod liver oil, begun about the time the milk comes in. Both the milk and the cod liver oil should be continued throughout lactation.

## THE CARE OF THE BLADDER

Water at frequent intervals should be offered as soon as the stomach is retentive, as a means of correcting any dehydration which may have taken place during the labor. The bladder should be watched for

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distention. If this complication arises and the patient is unable to void on a bed pan, she should be allowed the use of a commode, provided she has not sustained a second degree laceration. When a perineorrhaphy has been done, catheterization should be resorted to if the bladder is distended or the patient uncomfortable from retention. In many hospitals the dread of infection following catheterization is so great, that bladders are allowed to become over-distended. The resulting stasis of urine in the ureters and pelvis of the kidney favors urinary infection even more than does the proper use of the catheter.

#### THE CARE OF THE BOWELS

A few years ago it was an almost universal custom in this country to give a dose of castor oil on the third day postpartum and the bowels were kept open thereafter by frequent doses of laxatives. Later it was found that less drastic measures gave better results. Some preparation of mineral oil given twice a day, begun on the second night, is usually all sufficient. A soap suds enema may be given when necessary. If sutures have been introduced, the first evacuation is best postponed until the fourth or fifth day postpartum. This delay favors healing and usually does not add to the discomfort of the patient. The rectal tube may sometimes be used to advantage.

#### THE INVOLUTION OF THE UTERUS

A sub-involuted uterus carries with it an increased danger of infection for two reasons. The stasis of decomposing material in the uterine cavity favors the growth of organisms and the thrombosed placental sinuses, left open by the failure of uterine contraction, are exposed to the germs always present in the uterus after the third or fourth day, postpartum. A phlebitis originating in the sinuses is often limited to the placental site, but extension is not uncommon and the resulting thrombo-phlebitis may endanger life itself. Even if infection does not develop, the heavy, boggy uterus is almost sure to become retroverted. Our best method of favoring normal uterine tone lies in the administration of Ergot. One dram given t. i. d. until twelve doses have been given, is the usual routine. Later on in the puerperium it may be given again for two or three days if the rate of involution is not satisfactory. To favor drainage and to lessen the danger of retro-displacements, the patient should be instructed to lie on her abdomen as much as possible.

#### EXERCISE

The maintenance of general muscular tone is a point often neglected. Breathing, stretching exercises taken by the patient while lying on her back may be begun soon after deliv-

ery. To these should be added some gentle abdominal exercises as soon as the patient feels equal to taking them. Free movements of the body during the lying-in period favor normal circulation and tend to prevent the development of phlebitis. The normal patient may be allowed to sit up in bed on the seventh day. If she has not sustained a second degree laceration, the taking of the knee-chest position, night and morning, may be begun about the end of the first week. The normal patient is usually instructed to get out of bed on the tenth day. On the eleventh day she takes a few steps, and on the twelfth day she begins walking about the room. Many excellent physicians insist on more activity than I have outlined, but in my hands this more conservative routine has proven satisfactory.

#### THE CARE OF THE PERINEUM

Besides the routine irritation and drying of the perineum, we now expose sutures to heat and to light for twenty to thirty minutes, two or three times a day. This procedure hastens normal union and adds to the comfort of the patient. An ordinary electric bulb may be used. It must of course be protected by a wire cage and it should be provided with a reflector so that the rays may be focused on the perineum. Perineal pads should be applied loosely to allow for free drainage of the vagina.

#### VAGINAL IRRIGATION

The vaginal douche has, in my opinion, no place in the treatment of a patient during the first two weeks of the puerperium. The good effects are, I believe, more than offset by the increased danger of infection which is entailed by such interference.

#### CARE OF THE BREASTS

Strictly speaking, the breasts in a normal puerperium take care of themselves, but complications so frequently arise in an otherwise normal course, that I have included their treatment in this paper. From my knowledge of animal industry, gained during my childhood on a farm, I have always considered the sponging of nipples with borie acid solution before and after nursing as worse than useless, and for many years past I have discarded this troublesome regime. For marked breast engorgement a snug binder or strapping with adhesive is used to advantage. I disapprove of massage altogether, since bruising of the breast so often attends its employment. Pumping is resorted to very rarely and as a last resort. Ice bags to the breast and the administration of codein and aspirin are sometimes necessary for the relief of pain. If the nipples become abraded, silver nitrate in one per cent solution may be applied after each nursing and sterile gauze lightly smeared with some sterile lubricant

may be strapped over the nipple. The lubricant is not used as a medication, but serves to prevent the sticking of the gauze to the nipple. If much pain is occasioned by nursing it is well to have the baby nurse through a nipple shield. A fissure requires cauterization with a silver nitrate stick. After this treatment the breast should be immobilized and no milk should be removed from it for twenty-four, forty-eight or seventy-two hours, depending upon the amount of the engorgement.

This year at the Louisville City Hospital we are trying out the Polak-Beck method of painting the abraded nipples twice a day with 5 per cent silver nitrate and leaving the nipple exposed to the air without covering of any kind. This method is much simpler than any one I have ever used and I very much hope it will prove satisfactory in our hands.

When abscess formation threatens, as indicated by the red, painful, hot area in the breast, the gland should be at once immobilized by strapping with adhesive. Ice bags should be applied and *no milk removed from the breast*. No massage should be indulged in. Narcotics are sometimes necessary for the relief of pain. Under this treatment, the inflammation usually subsides, but if it should not, the treatment should be continued until the infection becomes walled off and a fluctuating point appears. At this stage incision and drainage is imperative.

#### GENERAL INSTRUCTIONS ON DISMISSING THE PATIENT

Before dismissing a patient from the hospital, I make it a practice to have a long conference with her on the care of herself and the baby. I urge her to put the child in the hands of her family physician or a pediatrician *as a health measure*. Knowing that she may not do this before the end of the sixth week, I take up with her in minute detail the care of the baby. When the conversation is over she has a good working basis for the beginning of her great profession. I have found that such information contributes largely to her health, mental comfort and normal lactation. Not until after all her mental questions have been answered as to the care of the baby is she ready and willing to heed the instructions given as to her own health. Her diet remains the same, though I again stress the importance of milk and cod liver oil. The method of elimination is also unchanged. As to exercise, I insist that she rest most of the time during the third week, and I ask her not to go up and down stairs. Beginning with the fourth week, she may go down stairs at first once a day and later oftener. Towards the end of the fourth week she goes out for a little walk or drive. How-

ever, I caution her against doing anything which occasions her fatigue until I have examined her in the office at the beginning of the sixth week. A routine rest of at least one hour should be taken throughout lactation, and I have found it a good practice to have her lie down when she nurses the baby.

#### FINAL EXAMINATION IN THE OFFICE

I give each patient a final thorough examination in the office some time during the sixth week. Especial attention, of course, is paid to the pelvic examination. Retroversions are corrected and the uterus maintained in anteversion by a well-fitted pessary and the use of the knee-chest position. A routine treatment is laid down for any existing endocervicitis or cervical erosion. Besides the classic treatment by douches and local applications, I have recently resorted to the use of the electric cautery in some cases and have found this treatment very effective. No patient should be dismissed by her physician until the condition of her pelvic organs is good. Check-up examinations should be made at the end of the third, sixth and twelfth months. One year after delivery the condition of a woman should be as good or better than before conception.

#### ROUTINE ORDERS

As a summary, I am affixing to this article the orders which I write for the patient before leaving the hospital. They are not given as being the ideal or only routine, but merely to emphasize the importance to each one of us of following some good routine for postpartum care. Each doctor should of course follow the line of treatment which has given him the best results. The following is one which has served me well:

#### POSTPARTUM ORDERS GIVEN AFTER DELIVERY

- (1) Give codein grains  $\frac{1}{2}$  by hypodermic if necessary for rest.
- (2) Watch patient during the first twenty-four hours for undue bleeding. If such should occur, massage uterus, give 1 c.c. of pituitrin and report condition to doctor.
- (3) Watch bladder for undue distention. Allow patient, with no stitches, the use of the commode if unable to void on the bed pan. If a perineorrhaphy has been done, catheterize for undue distention or discomfort.
- (4) Give codein grains  $\frac{1}{2}$  with aspirin grains 5 by mouth for any pain or discomfort occurring during puerperium.
- (5) Give luminal grains  $1\frac{1}{2}$  for sleepiness not occasioned by pain.
- (6) Give Ernutin drams one t. i. d. for twelve doses.
- (7) Give Petrol-agar, ounces  $1\frac{1}{2}$ , night and morning, beginning on the night of the second day.



(8) Give a soap-suds enema when necessary, preferably not before the fourth day.

(9) Irrigate the vulva at least every four hours. Apply sterile pads loosely. Expose sutures to heat light for thirty minutes twice a day.

(10) Encourage patient to lie on her abdomen as much as possible.

(11) Allow no visitors during the first week except husband and one other member of the family.

(12) Patient to be left alone and not disturbed for two hours between 1 and 3 p. m. each day.

#### DISCUSSION

**S. S. Parks**, Lexington: I have been in active practice only one year, so of course my experience has not been so very large, in fact I am glad to get home or rural deliveries—nevertheless.

There was one thing in Dr. Pickett's paper which I was very glad to hear emphasized, that being the prolonged use of ergometin. I have recently noticed that there are many doctors who use nothing to keep up uterine tone. We use the fluid extract in dram doses every 5 hours for 5 doses, and I am not sure this is long enough since I occasionally find the uterus moderately boggy after this course.

I enjoyed Dr. Pickett's paper very much.

**W. T. McConnell**, Louisville: That is a very good paper, and I want to agree with it in every minute detail. There are two of three things that I should like to say by way of emphasis merely.

The control of postpartum hemorrhage immediately after the third stage is completed is a very important thing.

Dr. Pickett spoke of holding the uterus. I want to add a word about too much massage immediately postpartum. You can dislodge the clots in the placental site and promote continuous bleeding. It is better to hold the uterus without the massaging action.

Another good thing is to get your hand behind the uterus and lift it up so that it becomes a transverse organ rather than a longitudinal organ, if you understand what I mean. That cuts off a great deal of the blood supply through the uterine arteries and helps to stop the hemorrhage. Too much massage by a nurse often promotes the continuance of the hemorrhage.

I am a little more radical than Dr. Pickett about the patient's getting up to the commode. I wouldn't hesitate to let her get up to the commode, even though she had pretty nearly a second degree laceration, if she was strong enough; you get so much better drainage from the uterus, and the kidneys act so much better if the patient can get up. Unless she has a third degree laceration, or nearly that, I would rather she got up to the commode as soon as she was strong enough. It saves lots of bladder distention, lots of backing up of urine, lots of ma-

terial retained in the uterus postpartum.

I agree absolutely in the administration of ergot to keep the uterus in tone. The uterus is not nearly so apt to become infected if its tone is maintained.

I think I get very splendid results with the heat light Dr. Pickett mentioned. It is a very simple thing to rig up, even if you are not in a hospital. You can get heat and light to the perineum. Make it a little hot for them and they will get well much quicker, the wound will keep drier, and it will reduce pain.

One thing Dr. Pickett was going to get to but didn't, is the care that these patients deserve from the obstetrician when they come back at the sixth week's visit. No obstetrician has done his obstetrical duty by his patient until he leaves the cervix in as nearly normal condition as he found it. Sometimes it is his duty to leave it in a lot better condition, especially in old multiparas with discharges. You don't always need cutting surgery. Often treatment with a light cautery will give satisfactory results and the woman will be much healthier afterwards. I emphasize the point every chance I get that men who accept obstetrical cases are not through until that cervix at the end of the sixth week or the second month is looked after and, if possible, is healed up. The woman will go away singing your praises if you get it fixed up, and she will be in better health.

Dr. Pickett's paper was very concise and comprehensive, and we can all learn something from it.

**L. C. Redmon**, Lexington: This is a very practical paper, and I feel it is the right sort of paper for the Kentucky State Medical Association to hear. As Dr. Pickett said, if she read a paper about some very unusual condition, we would all be sitting on the edges of our chairs, but a paper as practical as this, some of us don't pay any attention to.

There isn't any difference, so far as I see it, between the routine in the postpartum care that Dr. Pickett practices, and ours. There is probably a little difference in the way we do it. Our routine is one dram of fluid extract of ergot every four hours for four doses, and then as it is indicated. I have recently been ordering catheterization of the bladder in 6 hours after labor unless the patient is able to void, because I believe if the bladder becomes distended, catheterization will be more often necessary than if the bladder is emptied early.

I do allow the patients to go to the commode if they have no perineorrhaphy. I don't know but that it would probably be better even to allow those that have perineorrhaphy to get up to the commode, but that is the sort of routine we have followed for quite a little while.

I am still old-fashioned enough to keep my patients in bed until the tenth day. I don't know that there is any reason why I should or should not do it, but that is my story, and I feel I am

going to stick to it for a while yet.

I listened with a great deal of interest to the heat and light treatment to the perineum. So far I have not used it. I think I will rig up an apparatus and try it out. It certainly won't do any harm and it may do a great deal of good, as has been said.

We have abandoned the irrigation of the perineum. We use sterile bandages and apply mercurochrome. We think we are getting better results than with the irrigating method.

This is certainly a practical paper, and I feel it is valuable.

Alice N. Pickett, Louisville, (in closing): I am most grateful to the gentlemen who were good enough to discuss my paper.

In regard to the care of perineal sutures, I would like to mention the Polak-Beck Method as used in the Long Island College Hospital. We have as our resident in obstetrics this year at the Louisville City Hospital, Dr. Light, who has just finished a service in Dr. Polak's hospital. He describes the method as follows: "For the first three days the perineum is not irrigated or treated in any way nor is the use of perineal pads allowed. A sterile pad is kept under the hips. The first sheet put over the hips after delivery is sterile. The blood clot forming along the suture line is not disturbed and thus the wound is sealed off. After three days the perineum is irrigated but no attempt is made to wipe away the clots. Their impression is that they get better results by this non-interference method than they formerly got when the care of the sutures was often over-zealous. The method might not be applicable to all private cases.

I am much interested by the method described by Dr. Redmon. I shall certainly try it out.

I am sorry that I did not have time to read the part of my paper that had to do with the postpartum examination done at the 6th week. This examination is of prime importance but I think we should go even further and make check-up examinations at the end of the 3rd, 6th and 12th months.

**Colon Bacilli in Urine of Catheterized Patients with Urinary Disorders.**—With the exception of urine from patients with gonorrhea and tuberculosis or of urine known to contain typhoid bacilli or pneumococci, Pillet made a bacteriologic examination only of urine obtained by aseptic catheterization in patients with urinary disorders. He found that gram-negative bacilli were predominant. In 27 of the 40 patients bacilli of the colon bacillus type were found; the rest showed staphylococci and *Bacterium enteritidis*. Cultures of the urine obtained from 16 patients with infections of the colon group, taken at random showed 14 specimens to contain *Bacillus coli* and 2 to contain *Bacterium mucosum*.

## RAT BITE FEVER\*

J. A. ORR, M. D.

Paris.

Rat Bite Fever or Sodoku, as it is known in Japan, is a comparatively rare disease in this country, but of more frequent occurrence in Japan.

It is an infectious disease, usually following the bite of a rat, but may follow the bite of a weasel, cat or squirrel.

According to the Japanese, who have had more experience with it than any others, this disease is caused by the *Spirocheta morsus muris*. The organism is evidently transmitted through the saliva.

The incubation period is from ten to thirty days, usually about fourteen days.

It is characterized by a lymphangitis in the region of the bite, followed by a chill and a rapid rise in temperature to 103 to 105 F accompanied by more or less severe muscular pain and tenderness, especially in the lower extremities, with the characteristic rash. These symptoms last from three to five days, when the fever falls by crisis and all symptoms subside for four to six days, then another paroxysm begins and thus continues in this relapsing manner.

I was called to see a white male child, age 5 years, who gave a history of having been bitten on the hand by a rat about three weeks previously. He had some lymphangitis of the hand leading to the lymph nodes above. He had a temperature of 105 F, which was preceded by a chill. His throat, chest and abdomen were negative. He complained of pains in his lower extremities and had a rash consisting of bluish red macules from 1 to 10 cm. in diameter, more profuse over his lower limbs. His blood examination showed a leucocytosis of 18000. It was negative to typhoid, tularemia and Malta fever. He had a 1 plus Wassermann and negative Kahn test. This was considered a negative test for syphilis, as all spirochete infections may give a positive Wasserman. These symptoms lasted four days, when his temperature fell by crisis and all of his symptoms subsided for six days, when another attack of fever with the accompanying symptoms set in. These relapses kept up in a milder way for several weeks, but the fever was never as high as during the first attack.

Arsphenamin is supposed to be a specific remedy for this disease, and it seems from the literature that one dose of 3 gms. is usually curative. However, this case did not seem to yield so readily. I gave him five doses of Neo-Arsphenamin at eight to ten-day inter-

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vals, after which he still had mild relapses, with temperature not above 99 2-5 F, for two or three weeks, when it finally subsided.

### ACUTE CORONARY OCCLUSION\*

EMMET F. HORINE, M. D.

Louisville.

Apparently involvement of the coronary arteries is being encountered with increasing frequency. Recognition of and proper management of those presenting coronary changes often leads to marked prolongation of life. The inception of an acute coronary occlusion (coronary thrombosis) may suddenly terminate life, though our statistics show that somewhat more than fifty per cent of the patients make a partial or complete recovery.

Your attention is directed to this brief case report for the following reasons: Relatively early age of the patient, absence of premonitory symptoms, typical history and apparently a complete recovery with freedom from other attacks for over six years.

The patient was a man thirty years of age and a salesman by occupation. He had never been ill until May 25, 1925, when he suffered a severe attack of pain in the region of the heart, the pain radiating into the left arm. At the time the pain began he was dressing for golf and shortly after its cessation he went on the links. He now became aware of decided shortness of breath and after thirteen holes he had to stop and lie down for half an hour because of severe precordial pain. On the following day he had another severe attack of sub-sternal pain lasting fifteen minutes. On the same evening at six o'clock he again experienced an excruciating attack of pain which lasted the whole night and was only partially relieved by morphine. The pain was described as of a sharp, oppressive type which ran into the left arm. Since the last attack he had been very short of breath on slight exertion.

He consulted me seven days after his initial attack. Aside from heart sounds that were "tick-tack" in type the entire physical examination was negative. His blood pressure was 116-70 mm. Hg., with a ventricular rate of 84. His blood Wassermann was flatly negative. His temperature was normal and likewise the blood count. His family history was negative for heart disease, his father being alive at 66 and his mother having died at childbirth.

Electrocardiograms revealed an upward convexity of the S-T interval and an inverted T in lead I. The T of lead II showed similar though less pronounced features, while the T

of lead III was positive. (Record A.)

He was placed absolutely at rest in bed for four weeks. At the termination of this period he was allowed to gradually be up and around. His blood pressure was then 104-66 mm. Hg., with a pulse rate of 92. Electrocardiograms now showed, as formerly, typical inversion of the T wave in lead I, with upward convexity of the S-T interval, but the T waves of lead II, as likewise lead III, were upright. (Record B.)

He was permitted to gradually take more exercise and to resume his occupation of city salesman within four months after his primary attack. His blood pressure was then 122-88 mm. Hg., with a heart rate of 80. He continued to improve and a year after his attack electrocardiograms showed a normal T in lead I, a positive T in lead II, but an inverted T in lead III, such as is encountered in approximately thirty per cent of normal individuals. (Record C.)

At present this patient is free of symptoms and has continued his occupation. From an electrocardiographic standpoint as well as the clinical findings and present history he has made a complete recovery.

Certain phases of the clinical picture of coronary thrombosis need emphasis. Pain, either sub-sternal or upper abdominal with or without radiation upward and lasting for many minutes or even hours, constitutes the typical picture. However, we have had opportunity to see proven cases of coronary thrombosis who never complained of any pain whatever. They merely exhibited evidence of collapse with a fall in blood pressure and electrocardiographic abnormalities. Another point which needs emphasis is the fact that occasionally the pain occupies an atypical situation, for example, pain localized entirely in the lower jaw or pain entirely in the back, either between the scapulae or in the shoulder. At times merely pain and numbness in the hands and forearms lasting for thirty minutes to several hours constitutes all that is described by the patient.

Shortly after an acute coronary occlusion a pericardial friction rub may develop. However, it is evanescent and its absence should never prevent a diagnosis of coronary thrombosis in the presence of a typical history or other signs.

The increase in temperature and leukocytosis which appears within twenty-four to forty-eight hours after the occlusion should not lead to a false diagnosis of some infection. Surgeons must be particularly careful when they encounter upper abdominal pain in individuals over forty years of age. Even tenderness over the gall bladder should not lead to a diagnosis of gall stones if the patient's pain has been unrelieved by morphine,

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if collapse and a marked fall in blood pressure has occurred. The possibility of a status anginosus abdominis should constantly be borne in mind. Electrocardiographic observations are of great importance, and now with the portable type of electrocardiograph, the instrument can be used quite conveniently in the home regardless of its location.

The prognosis of coronary thrombosis naturally is dependent upon the size of the vessel occluded and upon the condition of the myocardium in general. With occlusion of the main stem of one of the coronaries ventricular fibrillation usually supervenes and death is practically instantaneous. When smaller branches are occluded there may be rapid or slow myocardial failure and eventually death after a period of hours or months.

Also the infarcted area may soften to such an extent that, days or weeks after the acute occlusion, death suddenly occurs from rupture of the heart. In still other cases the collateral circulation is able to cope with the situation and the infarcted area is repaired by scar formation. In general, patients having a coronary thrombosis occur as a complication to an arteriosclerotic type of heart have a more favorable prognosis than those with such a complication occurring in the hypertension heart.

If the patient is to be restored to health it is absolutely essential that a full month's rest in bed is taken, dating from the last seizure of pain. With patients who, while at rest in bed, continue to complain of sub-sternal discomfort the absolute rest should be prolonged even for months.

Aside from rest and morphine during the acute attack drugs are not used at all by some physicians. Nitroglycerin and other nitrates should not be used after a diagnosis of coronary thrombosis has been made. Digitalis is of no value unless auricular fibrillation or congestive heart failure supervenes. The purine derivatives, especially theobromine or theophyllin, are of some value not only in mitigating the attacks, but likewise in acting as coronary dilators and thus permitting a more efficient circulation through the heart.

**Injuries of Vena Cava Inferior.**—On the basis of his personal experience during nephrectomy and of a review of the literature, Esmenard advises total ligation of the vein, provided the site of the injury is above the point of branching of the renal veins. Although total ligation may to a certain extent be responsible for postoperative complications, it has never been proved to have caused a fatal outcome. He considers this technic preferable to lateral suture if the operation has been unduly protracted or if the condition of the patient necessitates a rapid termination of the intervention.

## BLADDER TUMOR\*

H. J. FARBACH, M. D.

Louisville.

I am not reporting a freak case. In my opinion rare and strange cases should be reported in the proper literature, and available for latter reference in libraries and books but should never appear on a clinical or scientific program.

In this discussion I refer only to the epithelial type of tumor as the others are rare and seldom seen.

With the clinical fact, ever before us, that seventy-five per cent of all hematurias are due to growths within the bladder, it seems almost inexcusable, that so many members of our profession are satisfied and content, if after a few days rest and palliative treatment, these bleedings cease, to let them go at that.

Many times, unfortunately for the patient, these hematurias are painless and after the first few hours of apprehension, if not impressed of the probable seriousness, by the consulting physician, they too are prone to let it go at that.

In many instances it is years before anything again directs attention to the condition that in the interval may have progressed to a stage where ultimate complete relief is impossible.

I think all Urologists agree that it is the size of these bladder tumors that determine the outcome. It does not matter much what the laboratory report on the tissue may be, papilloma or carcinoma, if the lesion has advanced beyond a certain extent its complete removal and eradication is impossible. While on the other hand, the malignant type if found when small can, in most cases, be cured.

When we consider that all bladder tumors of the epithelial type continue to grow in extent and depth, it is a foregone conclusion that the earlier it is attacked, the easier it will be destroyed and the better the prognosis. I personally, have never seen a bladder cancer cured that had advanced to the stage where an open operation was necessary.

Hence it behooves the general practitioner, who most often is the first one consulted, to insist that the cause of every hematuria be located.

There are few if any conditions in the urinary tract that can not be diagnosed by the properly trained and equipped uro-

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logist of today. We have the one specialty in which very little need be left to guess work or chance.

As stated before it is a clinical fact that seventy-five per cent of all hematurias are due to new growths within the bladder. It is also true that the first hemorrhage, in any case, usually occurs at a stage of the growth when eradication is possible. It is equally true that if neglected they invariably advance to where complete removal is impossible.

#### ETIOLOGY

The etiology of bladder tumors is still rather obscure. The mucosa is made up chiefly of the transitional type epithelium, which is very sensitive and proliferates rather profusely when irritated. Chronic infection is probably a potent predisposing factor.

Epithelial tumors have been found at autopsy in children, showing that this pathology may have its beginning in early life. There are no glands in the normal bladder. Occasionally, small glandular structures are found in the region of the vesical neck in both sexes. Their similarity to prostatic tissue have earned for them the name of "aberrant prostatic tubules."

#### SYMPTOMS

The three outstanding symptoms are hematuria, pain and urinary disturbances. The bleeding is characterized by its bright, fresh blood appearance that distinguishes it from the darker, more disintegrated specimens seen in bleeding from higher up in the urinary tract.

The hemorrhage may be slight. I have obtained the history of a single passage of bloody urine. It may be profuse, lasting for days and forming clots large enough to produce complete retention. The former, that lasts for just a few hours or a day, and produces no discomfort, is the one that leads so many doctors astray and loses for the patient his one opportunity for cure. The amount of bleeding is no indication as to the size of the tumor, especially in the early stages.

Pain: It varies greatly and is rarely a prominent symptom. Some complain of a sense of tenseness and soreness in the lower abdomen, that cannot be definitely located, but is aggravated by exertion. Others describe a spontaneous pain in the suprapubic region. Where carcinoma has advanced to the stage of bony metastasis you get the back and leg pains, with easy fatigue.

Urinary disturbance varies from a pain in the glands on urination to frequency, tenesmus and strangury of the most severe type. The acute symptoms, however, are most often due to an associated cystitis.

Diagnosis: With the symptoms of hematuria, pain and urinary discomfort or a history of them, our attention is directed to the bladder and the urine.

Many of these cases, on presentation, will have a macroscopically clean urine. All will show red blood cells, and most of them suggestive cell clumps on microscopical examination. In the cases with secondary infection pus and bacteria are present, of course.

General examination should eliminate kidney tumors or malposition; blood chemistry, renal back pressure and rectal examination, prostatic disease. The possibility of tuberculosis must never be overlooked.

The positive diagnosis is made at cystoscopic examination. The size and location of the tumor determines the prognosis. A specimen of the growth should be obtained for microscopic diagnosis and to make record complete. When, either from appearance or laboratory report, any suspicion of malignancy had been raised, the pelvic, long bones and ribs must be X-rayed for possible metastasis.

#### TREATMENT

Three methods have been advocated—radium, resection and diathermy. My experience with radium, from a personal and from an observation standpoint, have been such that I have discontinued its use in these cases. There may be a few localities where a radium service exists that offers these patients something, but they are few and outside of these clinics. I firmly believe its use not only does not give relief, but actually increases the discomfort and hastens the end.

Resection, I believe, is slowly but surely being confined to a small percentage of selected cases.

Diathermy is the most common and effective method in use. With modern instruments and equipment a skilled operator seldom has to resort to an open operation.

I will report, briefly, two cases:

S. A. L., age 52, in September, 1928, when examined for some group insurance was refused because of microscopic blood in his urine. General appearance was of a normal, medium-sized man of his age. Past history was negative except for a single passage of bloody urine five years before. At that time he was where he could not consult a competent medical man, and in as much as it had given him no discomfort and he had had no recurrence, he dismissed it as some passing unimportant thing.

Present history negative except for an indefinite sense of tenseness in the lower abdomen. Physical was negative. He passed a clear specimen of urine. Micro, however, it showed red blood cells and suggestive clumps of epithelium. Bladder capacity and dilation normal.

Cystoscopy shows papillomatous masses about the size of a five-cent piece situated above and incorporating the upper ureteral margins on both sides. Micro report, simple papilloma.

He was so engaged at this time that it was impossible for him to be away from his work. The size and type of growths made it imperative that no more time be lost. The tumors were destroyed by cystoscopic diathermy at four sittings in five weeks. He lost no time from his work.

Cystoscopic examination one year later showed both masses gone and the mucosa smooth and soft. A small suspicious spot was noted below the ureteral opening on the right side. Three months later this had disappeared and the urine was clean. Last cysto in December, 1930, no evidence of any pathology.

In contrast, case number two:

In December, 1928, A. S., aged 71, was referred for a hematuria and clots that had persisted for a week. He was a tall, thin, pale man, active and alert.

Past history had no bearing on present condition except had passed blood for two days fifteen years before. Doctor consulted at this time said it was due to malaria. Two years ago he had another short painless bleeding which he attributed to a return of the malaria.

His present condition dates back to five weeks ago when he had passed bloody urine and small clots for four days. He had no pain or frequency then. A week ago the blood reappeared and had persisted ever since. He complained of slight pre-urinary discomfort and voided about every three hours day and night.

Examination: No tumor in kidney region. no distention, no prostate. He passed an ounce of bloody urine containing many small black clots. No straining. Catheter shows bladder empty. Blood persists after a 1500 c.c. irrigation. Bladder capacity less than 200 c.c.

Cystoscopy: There were numerous small bleeding masses in the vesical neck and on the trigone. A large mass that could not be clearly defined occupied the upper portion of the trigone and posterior vesical wall, diagnosis, carcinoma.

Complete eradication by any method was impossible. Control of bleeding was the chief consideration. In my experience ceanothyn has been a very valuable agent in these cases. It must be given in large doses and often for results. I have never seen any toxic reaction from its use.

Numerous short-time coagulations cleaned up most of these bleeding points and he lived until April, 1931. He was up and attending

to his duties until two months before he died. He had a two-hour frequency day and night, always showed microscopic blood, but had no distressing symptoms and never had an excessive hemorrhage after the diathermy treatments.

Compare this last case with any one in which you know radium had been used and make your own deductions as to the value of this agent in these cases.

#### CONCLUSION

I had but one object in this report—trying to emphasize the importance of any hematuria. Doctors everywhere are realizing the importance of a nodule in the breast and the necessity of early consultation. The seriousness of this clinical symptom is even being understood by the majority of laymen.

If I can leave the impression that bloody urine must be given the same serious consideration my object has been obtained. Remember that seventy-five per cent of all hematurias are due to growths within the bladder. Their early recognition means complete eradication of a lesion that if neglected inevitably progresses to an incurable condition.

#### PAIN IN RIGHT LOWER QUADRANT OF ABDOMEN\*

J. B. LUKINS, M. D.

Louisville.

Pain in any part of the abdomen demands consideration and the proper interpretation is often of vital importance.

The right lower quadrant is perhaps the site of most frequent disturbance. Here the causes are varied and if the condition is acute, it is imperative that we arrive at an opinion as to the pathological factor in the shortest possible time, consistent with safety.

Pain in the lower abdomen is a symptom in so many different conditions that it is only by ascertaining a very careful history, a thorough abdominal and pelvic examination, aided by whatever laboratory tests are indicated or available, that we are able to arrive at a correct diagnosis.

Appendicitis is by far the most frequent cause of pain in the right lower abdomen but in addition to the appendix, the right side of the abdomen has many traps for the unwary and even for the most skillful. More than once have I seen the abdomen opened for an inflamed appendix when the correct diagnosis was a ureteral stone or a twisted ovarian cyst.

A complete discussion of the symptoms, pathology and management of appendicitis

\*Read before Nelson County Medical Society, Bardstown, October 14th, 1931.



would seem trite to many of you, but every surgeon present knows that after all these years and its very frequent occurrence, that delayed diagnoses are common with corresponding fatal results.

The classic sequence of symptoms in acute appendicitis is well known, perhaps too well known. In this condition the order of symptoms is pain, nausea and vomiting, elevation of temperature and localized tenderness. The initial pain is caused by the distension of the appendix and is relieved by the discharge of the contents of the appendix into the lumen of the cecum, rupture or gangrene. The nausea and vomiting are reflex in character and are a measure of the severity of the pain.

In my own experience and by observation of those with whom I am associated there are three things mainly responsible for a delay in diagnosis with a consequent increase in mortality rate.

(1) Pain in acute appendicitis in the beginning is not usually in the right side as commonly stated, but in the epigastrium. It may be two or even three or four days before it is localized at McBurney's point. It is in this interval that the ravaging progress of gangrene or appendiceal abscess is taking place.

(2) At the first suggestion of appendicitis, an icebag to the abdomen will probably relieve the cutaneous reflex pain in many cases and lull both doctor and patient into the belief that the disease is being scattered and an operation avoided. The pathology usually goes on unabated and a simple case has only been transformed into a serious one with more or less peritonitis, the operation becomes difficult, drainage must be instituted, with a prolonged and doubtful recovery.

(3) In the beginning of the inflammatory process in the appendix, the patient experiences a sense of weight or heaviness in the bowel, the first thought, naturally, is to remove this by purgation and promptly a drastic dose of castor oil or calomel is given. Nothing could be more damaging to the peritoneal cavity. Nausea and vomiting is usually increased, straining of the intestines and abdominal muscles, with a resultant spread of the infection and a possible rupture of the appendix.

The ordinary methods of examination in a suspected case of appendicitis are too well known to need any elucidation here, but there is one examination that I do not believe to be in daily use, that will be very helpful. I refer to the rectal digital examination. This may be used in any case, but is especially helpful in the case of single girls with right sided pain.

The tenderness or mass can in this way usually be located and differentiation made

between appendicitis or ovarian disturbance.

The homely methods of bedside examination and diagnosis have lost none of their value, but there has been a great tendency in recent years to become careless and lean too much on our friend the laboratory technician.

A blood count in right sided abdominal pain should routinely be made and usually clinches the diagnosis. In doubtful cases, repeated counts are often helpful.

A reference here to the practical advantage of the Schilling Blood Count should be of interest.

The Schilling test is rather recent in this country and is considered by most laboratory men a distinct forward step and of practical advantage.

As we all know the conventional blood count is not always conclusive in acute infections and we gladly welcome any measure that will aid us in a more accurate diagnosis.

One case from the report of Dr. J. D. Allen will illustrate my point.

"This is a case of appendicitis. I was called by the attending physician to make a Schilling's count. An hour later the patient was taken to the hospital, where the routine or conventional count was made by the technician. A review of the two counts on chart is interesting. The old or conventional count which was made an hour after the Schilling's count, shows a leucocytosis of 12,800 with a "poly" count of 80%. According to our interpretation of the conventional count, this is not an alarming or serious picture, rather what we expect to find in a benign case of appendicitis.

An interpretation of the Schilling's count, according to Schilling's idea, shows leucocytes of 12,300, basophiles 2% (indicates loss of resistance) unfavorable finding, eosinophiles 0%, unfavorable finding (eosinophiles disappear in severe infections), myelocytes 3%, very severe bone marrow irritation (unfavorable finding), juvenile 12% (extreme bone marrow irritation), unfavorable finding. Staff 22%, also indicates a severe bone marrow irritation (unfavorable), segmented 45, making a decided left shift of 48% (unfavorable finding). Monocytes and lymphocytes reduced, both unfavorable findings, showing acute infection with loss of resistance.

The whole picture very unfavorable according to Schilling's interpretation. Immediate operation indicated.

Patient operated on as soon as hospital reached, showed gangrenous, ruptured appendix."

In acute salpingitis we have pain, higher fever than in appendicitis, the presence of a pussy discharge and the presence of a mass on bimanual examination.

The history is very helpful and should not be overlooked, a disturbed menstruation or an abortion usually point to salpingitis.

Acute pyelitis is often mistaken for appendicitis. This is most apt to occur in children and pregnant women.

We should be able to exclude pyelitis by repeated urinalyses in case the ureter is blocked and the first examination is not conclusive.

The passage of a calculus from the kidney through the right ureter is usually accompanied with severe pain often with sudden onset, simulating appendicitis or a twisted pedicle of ovarian cyst. The absences of fever and leucocytosis and the presence of blood cells in the urine will usually clear the diagnosis. The cystoscope and x-ray may be resorted to in doubtful cases.

In intussusception, seen most frequently in young children and old people, there are bowel movements of bloody mucus. As the obstruction progresses, there is increase in the severity and frequency of the colicky pain, there is distention and some tenderness, but seldom rigidity.

Within the first twenty-four hours there is often visible peristalsis, which disappears later. There is an absence of fever. The vomiting becomes persistent and the tongue is red and dry. There is a decrease in the blood chlorides with an increase in blood urea and an increase in the carbon dioxide combining power in the blood plasma. If unrelieved, the picture is one of increasing toxemia with subnormal temperature, rapid, feeble pulse and death.

"About a year ago I operated on a four year old child that had both an intussusception and appendiceal abscess. It would be very interesting and helpful to know which one of these conditions began first. From the history as given by the family, it would seem that the intussusception was first present, but it is more than likely that the inflammatory condition was primary and the enveloping of the gut, secondary."

The trained finger of the gynecologist can usually distinguish between the nodular fibroid, the fluctuating ovarian cyst, the sensitive tubo-ovarian abscess and the mild salpingitis, but not so with the average tubal pregnancy.

This diagnosis is very difficult in fact is not usually made before rupture. The modern test for pregnancy should be very helpful in these cases and I am sure will be discussed in Dr. Davidson's paper on this program. It is not always easy to diagnose a tubal pregnancy when rupture takes place, but by taking an accurate history and pains-

taking examination, this should be done. The onset is usually sudden, with cramps, a gush of blood and fainting. This fainting, or sense of extreme weakness is a very important symptom and should always be taken into consideration. The history of absence of menstruation, the passage of blood, the presence of the mass and "Pregnancy Test" will usually clear the diagnosis.

An uncomplicated ovarian cyst is usually without symptoms except slight irregularity of menses and a sense of weight or pressure in the pelvis. Severe continued pain, however, usually accompanies a twisted pedicle of an ovarian cyst. Distention of the abdomen further complicates the picture. So again, the absence of fever and the blood picture with the urinalysis should promptly clear the diagnosis.

There are many other conditions in the right side of the abdomen that I will only have time to mention as capable of producing pain and demanding interpretation.

Varicose condition of the ovary and broad ligament occasionally give rise to symptoms. Chronic appendicitis, I will only mention. Tubercular peritonitis we see rather often, but should be promptly recognized by the history and other conditions of the system. A ruptured duodenal ulcer with leakage and localization low down on the right side may demand our attention, but if mistaken for an acute appendicitis, would be entirely excusable.

After all the facts are gathered, after the evidence is at all in, in then becomes a matter of surgical judgment.

It is a well-known fact that many abdomens—most of them with a chain of chronic symptoms—have been opened that had better been left alone, but on the other hand, delay in acute conditions, such as appendicitis or ruptured tubal pregnancy, is too often fatal.

"I would rather be wrong than too late" is not a bad guiding principle.

In this given area, the right lower quadrant of the abdomen, where so many different abnormalities produce signs and symptoms may we apply ourselves to the task that we may analyze and more accurately interpret the symptoms in relation to the underlying physiologic and pathologic changes.



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NEXT MEETING LOUISVILLE

## COUNTY SOCIETY REPORTS

**Grant:** The Grant County Medical Society met at the office of the Health Department, Williamstown, October 21, 1931, with the following members present: Drs. Limerick, Abernathy, Mann, Marshall, Price, Plaine, George, O'Hara, Zinn, Ellis, C. M. Eckler, Menefee, C. A. Eckler, and the Public Health Nurse, Miss Ethel Cowart.

Meeting was called to order at the usual hour, with Dr. J. W. Abernathy, President, in the chair.

But it would be very unkind of me to go ahead with the notes of the meeting and fail to put in the foreground the excellent six o'clock dinner, which was given to the doctors of the society by our worthy Health Officer and his amicable wife; Dr. and Mrs. N. H. Ellis and I am sure that the doctors of the county will long remember the delightful way in which they were entertained, and I am sure that every doctor in the county will join with me in wishing Dr. and Mrs. Ellis a long and prosperous life.

The committee on Pauper Practice was called for and reported and as no definite agreement had been reached between the Fiscal Court and Doctors the committee was continued until next meeting.

The dues collected for the year, 1931, were Dr. J. D. George and Dr. R. E. Limerick, five dollars each, total ten dollars.

All further business was dispensed with and Dr. J. L. Jones, State Epidemiologist, was given an opportunity to address the society.

Dr. Jones gave one of the most interesting lectures I think I have ever listened to. He had everything new and up to date for handling the dreaded malady, Scarlet Fever. He showed beautifully, by means of moving pictures, the new way of detecting susceptibility to Scarlet Fever. It was really and truly a Post Graduate course for us physicians.

After the lecture, Dr. Jones subjected himself to numerous questions put forth by the doctors of the society. He answered them pointedly and lucidly and plainly showed the training of a master mind.

Dr. Jones not only imparted this knowledge to the medical profession in Grant County, but made visits to the schools of the county and tested the children for their susceptibility to scarlet fever. This is an act of the Good Samaritan.

Grant county people should be thankful to Dr. Jones and his helpers in this county, our worthy Health Officer, Dr. N. H. Ellis and our Public Health Nurse, Miss Ethel Cowart.

We want these valued helpers in public health to know that Grant County Medical Society stands at all times ready to cooperate and uphold with them.

As the hour was growing late at this time, we moved to adjourn to meet the third Wednes-

day in November at the usual hour.

C. A. ECKLER, Secretary.

**Bourbon:** The Bourbon County Medical Society held its regular monthly meeting on Thursday, October 15th, 1931, at 7:00 p. m. The meeting was held in the Masonic Building.

The Society was served with a dinner of barbecued lamb and pig.

Members present: Drs. J. A. Orr, Wm. Kenney, J. C. Hart, P. L. McClure, H. M. Boxley, W. C. Ussery, J. S. Wallingford, H. B. Anderson, L. Oberdorfer, M. J. Stern.

Visitors: Drs. L. W. Frank, Thos. Cook Smith, A. T. McCormack, Frank Stites and J. W. Kelley, Louisville. Thomas Marks, C. M. McKinlay, E. J. Murray, John Scott, W. O. Bullock, and J. A. Stoeckinger, Lexington; G. Clark, O. P. Clark, I. N. Brown, Browne Ishmael, H. D. Henry, W. C. Grant, E. Cole and R. H. Scobee, Winchester; K. W. Brumback, H. C. Blount, W. C. Blount, W. B. Moore, Marshall McDowell, J. E. Wells, R. W. Wood, Cynthia. Drs. H. V. Johnson, E. A. Anderson, S. S. Anderson, Georgetown; Drs. B. N. Pittinger, W. B. Hopkins, R. M. Blenker, M. H. Dailey, R. E. McMillan, J. C. Comer, of Paris, also H. Lineville, F. Townsend and R. Davis, Paris.

Dr. Thomas Cook Smith, of Louisville, read a paper on "Tuberculosis in Children," illustrated with slides.

Dr. L. Wallace Frank read a paper on "Surgery of Early Tuberculosis."

The discussion of both papers was opened by Dr. W. O. Bullock, followed by Drs. J. A. Stoeckinger, Edward Murray, John Scott, Thomas Marks, C. M. McKinlay, Frank Stites, C. G. Daugherty and closed by Drs. Smith and Frank.

Dr. A. T. McCormack spoke on the tuberculosis problem in the state of Kentucky, also on several other subjects of interest to the general practitioner.

M. J. STERN, Secretary.

**Franklin:** The regular monthly meeting of the Franklin County Medical Society was held in the Writing Room of the Capital Hotel, Thursday, November 5th, 1931.

Members present: Drs. Ginn, Coleman, Travis, Jackson, Patterson, Demaree, Minish and Youmans. Minutes of the last meeting were read and approved.

Dr. Coleman had charge of the program and related some very interesting cases of Trachoma and Diphtheria that were presented at the meeting of the County Health Officers in Richmond.

Resolutions on the death of Dr. George A. Budd were read and approved. The Society moved that one copy be entered on the minutes, one sent to the family and one to the State Medical Association.

# **Resolution of Franklin County Medical Society, On the Death of Dr. George Alexander Budd**

Dr. George Alexander Budd was born in Elyria, Ohio, May 3, 1871. Graduated in medicine in 1893 from the Medical Department of Western Reserve University in Cleveland, Ohio; was house physician at St. Clair Hospital in Cleveland in 1894. Removed to Cincinnati, Ohio and began the practice of medicine on Price's Hill in 1895, was there until 1897, then came to Owen County, Ky., and from there to Franklin County in 1903, where he remained until the time of his death September 15, 1931. Dr. Budd was a member of the Kentucky State Medical Society and past President of the Franklin County Medical Society.

Dr. Budd departed this life on September 15, 1931, at the age of 61 years. It is with sorrow that we have lost this noble physician and friend, who was so active and it is a pity that he should have been taken so suddenly from our midst and at a time in his life when he was so useful and such a comfort to his family.

Dr. Budd was a man of high and noble purpose devoted to his profession, loyal to his friends and medical associates. These characteristics were exhibited in his daily life and

Resolved: That in his death, this body loses an honored and highly respected member of the profession; his wife a devoted helpmate; his son a loving father and the public a useful and faithful citizen and servant and that we express our heartfelt sympathy to the bereaved family.

R. M. Coblin,

C. T. Coleman,

R. B. Ginn,

Committee

The Society adjourned to the Hotel Dining Room for lunch.

C. E. YOUMANS, M. D., Secretary.

**Nelson:** The Nelson County Medical Society had a splendid meeting on October 14th. We had the best attendance in years and a program equal to any day's program in our State Medical Association.

We had a large attendance of the ladies and Mrs. G. A. Hendon organized several auxiliaries, as many members and their wives from adjacent counties were present. The following letter was mailed to every Doctor in Nelson and adjacent Counties:

My dear Doctor:

You and your family are cordially invited to an old fashioned all-day meeting of the Nelson County Medical Society, Wednesday, October 14th. At noon a fried chicken dinner with its accompaniments and plenty of country ham, and new made sorghum will be served at the Old Kentucky Home Hotel.

We have secured for our speakers some of the best talent Louisville has to offer and a fine program. Poliomyelitis! Dreaded by every mo-



ther, its victim marked for life, rarely diagnosed in its early stages. Did you know there is a serum for curative and prophylactic treatment? Come and listen to the Demosthenes of our profession, Internist, Delegate to the A. M. A.—Virgil Simpson, has to say about making a diagnosis and Pediatrician T. Cook Smith will tell of the results to expect from convalescent serum. Would you like to know how pregnancy can be scientifically and positively diagnosed in the first week by the Aschheim-Zondek Test, not so formidable as its name when described by Obstetrician-Gynecologist, H. A. Davidson. Intestinal Obstruction. Beware of medical treatment before the Surgeon grabs the case. Surgeon G. G. Altman will give every phase of treatment of this disease which you see first, and which has a far too high mortality.

Surgeon Wallace Frank, son of a Surgeon, and for several years State Chairman of Cancer Prevention, will speak on malignancy.

Can you "weigh calories" for your diabetics and do you know that they can eat lots and lots of real good food. No greater student of this disease in America than Interist R. Hays Davis, who converses fluently in French and Spanish, but will tell us in plain English all about "Diet in Diabetes."

Do you know the most discussed subject today by church leaders, statesmen, social workers and many physicians, has never before been presented to a county society in Kentucky? Obstetrician, Lecturer, Vice President, Woman's National Medical Association, Alice Pickett, will give a physician's viewpoint of this most debatable question, Birth Control.

Dr. Philip Barbour, our State President-Elect, will make his premier appearance at the dinner and will tell us about the policies and endeavors of our State Association.

Yes, there is a Woman's Auxiliary. Mrs. G. A. Hendon, charming and as delightful a speaker as her gifted husband, will be with the ladies. A reception at Wickland, the home of three Governors, will be given by the ladies of Bardstown in her honor. A long program, but each one will speak his subject and it will be short, radio-concise and snappy. Join us in Bardstown! An Autumnal Recreation Day, A Post Graduate Day, A Clinic Day, A Better Doctor Day!

J. H. GREENWELL, Secretary.

### BOOK REVIEW

**THE SURGICAL CLINICS OF NORTH AMERICA.** (Issued serially, one number every other month.) Volume 11, No. 3. (New York Number—June 1931) 239 pages with 73 illustrations. Per clinic year (February 1931 to December 1931). Paper, \$12.00; Cloth, \$16.00. Philadelphia and London: W. B. Saunders Company, 1931.

The June number of the Surgical Clinic

of North America contains a symposium on fractures given in New York under the auspices of the Fracture Committee of the American College of Surgeons. Fracture of the spine, skull, femur, etc., are discussed in detail and the articles carefully illustrated. Such practical courses do much to reduce the lack of surgeons competent to care for fractures.

Other articles discuss common rectal disorders, acute infections of the hip and perforated duodenal ulcers.

**WYATT—Chronic Arthritis and Rheumatoid Affections. With Recovery Record.** By Bernard Langdon Wyatt, M. D., F. A. C. P. Director, The Wyatt Clinic, Tucson, Arizona; Formerly President and Director, The Desert Sanatorium and Institute of Research, Tucson. Octavo, 176 pages, buckram binding \$2.50 net. William Wood and Co. Publishers.

This new and very practical book by Dr. Wyatt includes an interesting Foreword by Dr. J. Van Breemen, Honorary Secretary and Director of Advisory Bureau, The International League Against Rheumatism, Amsterdam, Holland, also a special chapter on "The Incidence of Rheumatic Diseases" by Dr. Louis I. Dublin, well-known statistician of the Metropolitan Life Insurance Co., New York. Evidence shows that chronic arthritis and rheumatoid conditions today rank as the leading causes of illness in the United States. Every general practitioner has or knows of numerous cases, and this book should inspire to new efforts to aid such patients. Dr. Dublin deplores the pessimistic attitude of many physicians towards chronic cases of this disease and agrees with the author that even present knowledge of methods of treatment adequate care of patients will result in substantial improvement in their condition and in some cases complete cure. The chapters include; Types and Causes—Preventive Measures — Early Diagnosis — Diet — Drugs, Vaccines, Non-Specific Proteins—Hydrotherapy, Colonic Lavage, Electric Currents, Radiant Heat—Joint Exercises, Joint Movements, Massage—Climate, Sun Baths—Orthopedic Measures, Surgical Treatment—Summary and Results.

While designed for the general practitioner the book has been written in such a form as to be suitable for recommendation to intelligent patients, and in the back is a twenty-six page Recovery Record, a line for each day's entry of fluctuations and variations, with a monthly summary, thus providing the physician with valuable information and the patient with a progress perspective which may make all the difference between failure and success.

**BIOGRAPHICAL SKETCHES AND LETTERS OF T. MITCHELL PRUDDEN, M. D.** By Lillian E. Prudden. Published by Yale University Press, New Haven.

This volume was prepared in order that the desire of friends of the late Dr. T. Mitchell Prudden far more acquaintance with the personal side of his life. A few autobiographical notes left by him form the basis of the sketches of his early years. The details of his later life were the contribution of his many prominent acquaintances.

Dr. Prudden will always be remembered among physicians for his work in pathology and public health. During his whole life he devoted much time and thought to devising and promoting measures for preventing disease and for improving living condition. The book presents an interesting record of his life.

#### CLINICAL NUTRITION AND FEEDING IN INFANCY AND CHILDHOOD.

By I. Newton Kugelmass, M. D., Ph. D., Sc. D. Associate Attending Pediatrician, Fifth Avenue Hospital; Riverside Hospital; Pediatricist, Hospital for Ruptured and Crippled; Director, Heckscher Institute for Child Health. 37 illustrations. J. B. Lippincott, Publishers, Philadelphia and London.

The purpose of this book is to supply the general practitioner with information concerning the etiology, diagnosis and treatment of the problems of pediatrics involving nutrition. It comprises modern contributions applicable throughout growth from the antenatal period to infancy and from early childhood to pubescence in the cause and prevention of disease, maintenance of health and effective treatment of disease, or interrupted growth and development.

#### PIERSOL'S HUMAN ANATOMY, INCLUDING STRUCTURE AND DEVELOPMENT AND PRACTICAL CONSIDERATIONS.

Ninth Edition, revised under the supervision of Carl Huber, M. D., Sc. D., Professor of Anatomy; Director of Anatomic Laboratories and Dean of the Graduate School, University of Michigan. With seventeen hundred and thirty-four illustrations of which fifteen hundred and twenty-two are original and four hundred and sixty are in color. Published by J. B. Lippincott Co., Philadelphia, Pa. Price \$10.00.

In the preparation of the original edition the articles editor-in-chief had the aid of a number of experienced teachers of anatomy. In the course of years the text has received the necessary time-to-time revisions. The most

recent revision consists of an introduction of uniform B. N. A. nomenclature, and a re-writing of the sections dealing with histogenesis of the blood elements, development of the lymphatics and the primary veins. A limited number of new illustrations have been inserted. The page numbers have been kept intact.

The anatomy has long been a favorite with both students and instructors because of its clear detailed descriptions and its ample illustrations.

**TODD & SANFORD'S CLINICAL DIAGNOSIS.** Octavo of 765 pages, with 500 illustrations on 303 figures, 51 in colors. By James Campbell Todd, M. D., and Arthur H. Sanford, M. D., Professor of Clinical Pathology, University of Minnesota (The Mayo Foundation). Cloth, \$6.00 net. W. B. Saunders Co., Philadelphia.

The new (7th) edition of this successful book reflects all the many important advances in clinical pathology. All new clinical diagnostic tests and procedures are here detailed, as well as, of course, the standard methods. There are 500 illustrations on 303 figures, 51 of them in colors. The new additions include:

Corper and Uyei's method for culture of bacteria of tuberculosis

Fairhall's method for determination of lead

Folin's 1929 method for precipitation of protein from blood and body fluids

Folin's modified method for determining uric acid in blood

Folin's revised copper solution for determination of blood sugar

Clark and Collip's method for determination of calcium

Keith, Rowntree, and Geraghty method of determining blood and plasma volume.

The alcohol meal

Gastric reaction to histamine

The Gregersen test for occult blood

Asehheim-Zondek test for pregnancy, with a simple modification

Agglutination test in the diagnosis of undulant fever and tularemia

A general and thorough revision of every line of the text

The addition of many illustrations and replacement of others

#### NEWS ITEMS

Albert E. Leggett, M. D., announces the opening of offices, 614 Breslin Building, Louisville. Practice limited to diseases of the Eye. Office hours 9 to 12 and 2 to 5.





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